DOCUMENT RESUME

ED 025 651 VT 007 489

By- Kerr, Elizabeth E.; And Others

Practical Nursing in Iowa: A Profile. A Study of the Developments, Trends and Current Status of Practical Nursing in Iowa.

Iowa Univ., Iowa City. Div. of Medical Affairs.

Spons Agency- Office of Education (DHEW), Washington, D.C.

Pub Date 31 Jul 68

Note- 133p.

EDRS Price MF-$0.75 HC-$6.75

Descriptors- Admission Criteria, Certification, Educational Programs, Employment Patterns, *Health Occupations Education, *Historical Reviews, Individual Characteristics, Longitudinal Studies, Migration Patterns, *Occupational Surveys, *Practical Nurses, *Practical Nursing, Profile Evaluation, Program Descriptions, Program Development, State Legislation, State Licensing Boards, State Surveys, Statistical Data

Identifiers- Integrated Longitudinal Study of Practical Nursing, *Iowa

This sub-study of a 39-month longitudinal study conducted by the University of Illinois in cooperation with the University of Iowa, undertook to discern the trends in practical nursing in Iowa and to record a history of its development. The 435 member 10 percent random sample of practical nurses licensed in Iowa through December 1965, which was utilized in the major project, was used for this study. Data collected from the records of the Iowa Board of Nursing included selected personal, social, and education characteristics, basis of licensure (education or experience), and activity or inactivity of the current license. Among the findings were: (1) 136 nurses were licensed on the basis of experience (all prior to 1955) and 299 were licensed on the basis of education, (2) Only seven members of the sample were men, (3) A median age of 29 for the "education group" indicates a trend toward a younger practical nurse population, (4) Inactive licenses were held by 6 percent of the "education group" under 24, 25 percent between 25 and 44, 8 percent between 45 and 59, and 17 percent over 60; (5) The number of address changes reported by subjects indicated a high degree of stability. It was recommended that practical nurses be prepared to accommodate replacement needs as well as increased demands. (JK)

C1

Practical Nursing In Iowa: A Profile

ELIZABETH E. KERR
DALE F. PETERSON
F. RONALD CZAJA

ED0025651

THE UNIVERSITY OF IOWA • FOUNDED 1847

VT007489

ED025651

PRACTICAL NURSING IN IOWA: A PROFILE.

A Study of the Developments, Trends and Current Status of Practical Nursing in Iowa.

Elizabeth E. Kerr, Director
Dale F. Petersen, Associate Director
F. Ronald Czaja, Research Associate

Parts of research reported herein were performed pursuant to contracts with the Office of Education, U. S. Department of Health, Education, and Welfare and the Vocational Education Branch of the Iowa Department of Public Instruction. Contractors undertaking such projects under government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

Program in Health Occupations Education
Divi~~sion~~ of Medical Affairs.
College of Medicine
3 ~~The University of~~ Iowa University, Iowa City.

in cooperation with

4 Iowa Research Coordinating Unit, Ames.
Vocational Education Branch
Iowa Department of Public Instruction
and
U. S. Office of Education
Department of Health, Education and Welfare

Partially funded by
The Vocational Education Act of 1963
Sections 4(a) and 4(c)

July 31, 1968

VT 007 489

ACKNOWLEDGMENTS

The authors express sincere appreciation to:

the Director and Advisory Committee of the Research Coordinating Unit, Iowa Department of Public Instruction, for their partial financial support without which this study would not have been possible;

Dr. Robert M. Tomlinson, Director of the project, _An Integrated Longitudinal Study of Practical Nursing_, from which this sub-study originates, who gave us access to pertinent data collected for that project;

the Iowa Board of Nursing for its permission to obtain data from its permanent records;

Miss Vera Sage, Miss Frances Stoney, and Mrs. Lynn Illes, executive staff members of the Iowa Board of Nursing for their clarification of questions posed by research investigators;

Carole Hoadley of the Iowa research staff, and Warren N. Suzuki and Larry J. Bailey of the Illinois research staff for their assistance in data analysis;

Carla Hedges, Linda Rohret, Catherine Smith, and Dianna Reid, secretaries who endured the persistent clerical demands of this study; and

Donna Davis, for her expert assistance during the preparation of the final report.

We thank them all.

Elizabeth E. Kerr, Director
Dale F. Petersen, Associate Director
F. Ronald Czaja, Research Associate

Program in Health Occupations Education
Division of Medical Affairs
The University of Iowa

TABLE OF CONTENTS

Page

ACKNOWLEDGMENTS iii

LIST OF MAPS AND TABLES vi

CHAPTER

I. INTRODUCTION 1

BACKGROUND FOR THIS SUB-STUDY 1
BASIS FOR THE SUB-STUDY 5
DEFINITION OF TERMS USED 5

II. BACKGROUND AND DEVELOPMENT OF PRACTICAL NURSING IN THE UNITED STATES 10

THE NEED FOR HEALTH OCCUPATIONS PERSONNEL 10
DEVELOPMENTS IN PRACTICAL NURSING IN THE UNITED STATES PRIOR TO 1940 16
DEVELOPMENTS IN PRACTICAL NURSING IN THE UNITED STATES SINCE 1940 20

Nursing Organizations. Vocational Education. Practical Nurse Education. Licensure Provisions. Estimates of the Number of Practical Nurses. Continued Demand.

III. DEVELOPMENTS OF PRACTICAL NURSING IN IOWA 35

State Legislation and Examination. Role of Licensed Practical Nurse Defined. Licensed Practical Nurse Organizations. Practical Nurse Education in Iowa. Vocational Education's Contribution. Program in Health Occupations Education of the University of Iowa. Estimated Number of Licensed Practical Nurses in Iowa. Continued Demand.

IV. THE STUDY. 63

ORIGIN 63

PURPOSE. 64

METHODOLOGY. 64

Selection of Subjects. Collection of Data. Classification of Subjects. Determination of Geographic Divisions.

Page

FINDINGS 68

Total Number of Practical Nurses Licensed. Basis of Licensure. Number of Education Programs in Iowa by School Year. Currency of Licensure and Type of Preparation. Sex of Subjects. Race of Subjects. Amount of General Education Completed. State Board Licensing Examination Scores. Age at Initial Licensure. Age (1965). Currency of Licensure. Age and Residence In-State or Out-of-State. Place of Birth. Location Where General Education Achieved. Location and Type of Nursing Program Attended. Residence at Initial Licensure. Current Residence. Net Gain or Loss. Mobility of Education Group and Experience Group. Distribution of Currently Licensed Practical Nurses living in Iowa. Number of Addresses Since Original Licensure.

V. SUMMARY, CONCLUSIONS 111

APPENDICES 117

BIBLIOGRAPHY 127

MAPS AND TABLES

Maps

Page

Iowa Merged Area School Districts 51

Geographic Divisions and Locations of Iowa Practical Nursing Programs 67

Tables

Table No. Page

1. Employment of Registered Professional Nurses in the United States - 1964 13
2. Number of State-Approved Programs of Practical and Vocational Nursing, Academic Years 1955-56 to 1965-66 . 27
3. Number of State-Approved Programs of Practical Nursing by Type of Administrative Control, October 15, 1967 . . 28
4. Resumé of Practical Nurse Licensure in Iowa, by Fiscal Year, July 1, 1949 - June 30, 1966 40
5. Year Iowa's Twenty-Two Programs in Practical Nursing Admitted First Class, By Location and Type of Administration 48
6. Health Occupations Education Enrollments in One and Two-Year Preparatory Programs, 1966-67 and 1967-68 . . . 53
7. Health Occupations Education Enrollments in Short-Term Preparatory and Supplemental Programs, 1966-67 and 1967-68 55
8. Number of Programs and Enrollees in All Types of Health Programs, 1956-68 56
9. Number of Practical Nurse Licenses Issued in Iowa by Calendar Year 68

Table No. Page

10. Year of Initial Licensure by Basis of License, of the Sample 70

11. Practical Nurse Education Programs in Iowa by School Year 72

12. Status of All Practical Nurses Ever Licensed in Iowa, As of Dec. 31, 1965 73

13. Sex by Basis of Licensure 75

14. Race by Basis of Licensure 75

15. General Education by Basis of Licensure. 77

16. State Board Score by Type of Nursing Preparation . . . 78

17. Median Age at Licensure by Year Subjects Received Their Initial Iowa License 80

18. Age at Licensure by Basis of Licensure 81

19. Age in 1965 by Basis of Licensure 82

20. Age in 1965 by Status Group 83

21. Age in 1965 by Currency of License (Education Group) . 84

22. Nursing School Attended by Currency of License 86

23. Age in 1965 by Current Residence (Experience Group). . 88

24. Place of Birth of General Population of Iowa (1960 Census) and of the Sample 88

25. Place of Birth by Basis of Licensure 89

26. Location of General Education by Basis of Licensure. . 89

27. Nursing Education Program Attended by Geographic Division (Education Group Only) 91

28. Location of Practical Nursing Programs in Iowa Prior to 1965 by Graduates Licensed 1949-1965, Percentage of State Population in Each Geographic Division, and New Programs During and Since 1965 93

29. Location of General Education by Location of Nursing Program Attended (Education Group) 95

Table No. Page

30. Location of Nursing Program Attended by Residence at Licensure (Education Group) 98

31. Location of Nursing Program Attended by Current Residence (Education Group) 100

32. Location of General Education by Current Residence (Education Group) 102

33. Net Gain or Loss (Three Points in Time) by Geographic Division (Education Group) 104

34. Net Gain or Loss (Four Points in Time) by Geographic Division (Education Group, Excluding Iowa Professional Nursing Students) 105

35. Residence at Licensure by Current Residence (Education Group) 107

36. Residence at Licensure by Current Residence (Experience Group) 108

37. Distribution of Currently Licensed Practical Nurses Compared to Area Population 109

38. Number of Addresses Since Original Licensure 110

CHAPTER I

INTRODUCTION

BACKGROUND FOR THIS SUB-STUDY

A 39-month project, An Integrated Longitudinal Study of Practical Nursing, is being conducted under a prime contract negotiated between the University of Illinois and the U.S. Office of Education in compliance with the provisions of the Vocational Education Act of 1963, Section 4 (c). The University of Iowa is cooperating in this project under sub-contract with the University of Illinois. See Appendix A for the prospectus of the project.

The principal investigator is Dr. Robert M. Tomlinson, Department of Vocational-Technical Education, College of Education, University of Illinois. Elizabeth E. Kerr, Director, Program in Health Occupations Education, Division of Medical Affairs, The University of Iowa is Associate Investigator. Miss Kerr also serves as Head State Consultant, Health Occupations Education Section, Vocational Education Branch, Iowa Department of Public Instruction and is Director of the sub-study documented in this report.

The purpose of the major project is to determine: (1) the nature of the population of licensed practical nurses, their employment patterns and preferences, the recruitment and selection of students of practical nursing and the programs through which they are prepared; and (2) the relationships among identifiable characteristics of individuals and their employment patterns as practitioners of practical nursing.

An important question in any research is the extent to which the results may be generalized to other similar groups and populations. To enable the project to be economically feasible and temporally possible, the geographic area involved was confined to the States of Illinois and Iowa. Because of commonalities among many states with regard to legal requirements for practical nurse education programs and licensure, it is reasonable to expect that the findings of this project will have implications for the 50 states.

The project was conceived to be a comprehensive approach to establishing the dimensions of, and identifying the trends in, the field of practical nursing. It involves three somewhat independent but closely related and interdependent phases. Each phase is to establish the major characteristics, trends and relationships of that particular phase and to provide data and measures to be utilized in comparative analyses with the other phases. See pp. 5-6 of the project prospectus, Appendix A, for description of the phases.

Research staff members from Illinois and Iowa collaborated and cooperated on the design and pilot testing of the instruments utilized in the project. Following training sessions, they concurrently collected data in their respective States. The project included a total of 45 preparatory programs (public and private) and 101 employment locations where personal interviews were conducted with 688 licensed practical nurses, 130 registered professional nurses and 123 nurse aides.

The long-range goal of the project is the improvement of nursing service through improvement of the selection process, educational programs (including curriculum and instructional staff) and better utilization of prepared personnel. The general hypotheses are that there exist differential and identifiable characteristics among employment situations, among approved practical nurse education programs, and among the potential and actual students of those programs; and that meaningful relationships among these characteristics can be determined. Findings should serve to give direction to the improvement of the quantity and quality of available nursing service.

The project will not attempt to implement changes but will provide new knowledge that may be applied by those directly responsible for the preparation and utilization of practical nurses. Decisions on utilization of the data and findings in implementing educational programs and employment performance changes will have to be determined by those competent to make judgments appropriate to the particular situation.

This sub-study is one of several which present findings and related materials developed from data obtained in the major research project entitled An Integrated Longitudinal Study of Practical Nursing. Previously published sub-study reports are:

Iowa Practical Nursing Sub-Study, by Elizabeth E. Kerr and Dale F. Petersen: a study of practical nurses currently licensed to practice in Iowa but not presently employed in practical nursing in Iowa. It identifies factors which influence their return to active practice.

Practical Nursing in Illinois: A Profile, by R. M. Tomlinson, et al.: a companion publication to the one in hand, this study covers generally the same areas for Illinois as this sub-study and the Iowa Practical Nursing Sub-Study do for Iowa.

The following are reports of the major project which will be published:

Occupational Patterns and Functions of Employed Licensed Practical Nurses: an analysis based on interviews with licensed practical nurses, registered nurses and nurse aides employed in several types of health service agencies. Data have been collected concerning selected functions as performed by the licensed practical nurse by type of agency, area of service, and shift (hours of day) employed.

An Analysis of Selected Educational Programs in Practical Nursing: a detailed study of administrative structure, faculty and curricula based on data collected on both public and private programs.

Background, Characteristics, and Success of Practical Nursing Applicants, Students, and Graduates: an analysis of selection criteria, standardized tests and other personal and educational data obtained from forty-five on-going programs in Iowa and Illinois during the 1966-67 school year; of applicants who did not enroll; and, of enrollees who dropped out prior to program completion.

Summary and Final Report of the Practical Nursing Study: a report of the findings of the major project, An Integrated Longitudinal Study of Practical Nursing, as revealed by cross-analysis. While the several supplemental reports have been devoted to specific characteristics and variables, this final report will show the interrelationships among them. It should provide guidelines for student recruitment, selection, and prediction schemes as well as for curriculum development, evaluation and possible changes.

BASIS FOR THE SUB-STUDY

The research design used to obtain a random sample of employment locations for the above-described major project also provided information of a descriptive nature which could be utilized to develop a profile of practical nursing in Iowa. The Program in Health Occupations Education, The University of Iowa, negotiated a contract with the Research Coordinating Unit, Vocational Education Branch, Iowa Department of Public Instruction, to develop and report this profile using funds appropriated in Section (a) of the Vocational Education Act of 1963. This publication is the result.

DEFINITION OF TERMS USED

For purposes of clarification from the outset, special terms used in this document are defined below.

State Board of Vocational Education: the division of a state department of education which cooperates with public education institutions as they administer vocational and technical education programs partially funded by state and federal monies appropriated for this purpose.

State Board of Nursing (or Board of Nurse Examiners): the regulatory board of each state which is responsible for the educational standards of professional and practical nursing programs. It approves schools of nursing in the state and renews licenses for professional and practical nurses.

Nursing:

> . . . one of the resources in a community for the care of the sick, the prevention of illness, and the promotion of health which is carried on under medical authority. Its distinctive function is the close and individualized service to the patient which may vary with his state of health from one of dependence, in which the nurse performs for him what he cannot do for himself, through supportive and rehabilitative care, physical and emotional, to self-direction of his own health. Nursing is primarily patient-centered. It gives service directly through treatment, general physical care, and health instruction to the patient and his family and through the coordination of nursing with other community services essential to the patient's health needs.[1]

Registered professional nurse: a graduate of an educational program in professional nursing who has been licensed by a Board of Nursing to practice professional nursing and whose functions include:

1. the identification or diagnosis of the nursing problem and the recognition of its many related aspects;
2. the decision upon a course of action to be followed for the solution of the problem;

---

[1] Joint Curriculum Conference of the National League for Nursing, Report of the Proceedings, November 13, 14, 15, 1960 (New York, 1961), p. 21.

3. with assistance of the other members of the nursing and health team, both interprofessional and intraprofessional, the development of a satisfactory plan of nursing care, including therapeutic treatments for which the physician has delegated responsibility to the nurse;

4. the continued direction of the program of nursing toward its optimum accomplishment, and the performance of those aspects which demand the skill and judgment which she is best prepared to use; and

5. the evaluation of the process and the results of nursing for the continuous improvement of care of the patient and the practice of nursing.[2]

Licensed practical nurse:

a person licensed by a State Board of Nursing to practice practical nursing in two roles:

1. under the supervision of a registered professional nurse or physician, to give nursing care to patients in situations relatively free of scientific complexity; and

2. in a close working relationship, to assist professional nurses in giving nursing care to patients in more complex situations.[3]

State-approved practical nursing programs in Iowa: programs approved by the Iowa Board of Nursing when judged to meet that Board's standards for an educational program whose graduates may apply to sit for the practical nurse licensure examination. Programs operated in Iowa's public schools must also be approved by the Iowa State Board of Public Instruction. A program, usually one year in length, is self-contained, complete and satisfactory for its own purpose, preparing exclusively for practical nursing. Its objective is to prepare a worker who will share in giving direct care to patients. The practical nursing program is intended for individuals who will find satisfaction both in performing nursing functions consistent with short-term preparation, and in practicing nursing within a limited range of situations for which patients require care.[4]

---

[2] Mildred L. Montag, The Education of Nursing Technicians (New York: G. P. Putnam's Sons, 1961), pp. 4-5.

[3] National League for Nursing, Nursing Education Programs Today, (New York, 1962), pp. 9-10.

State Board practical nurse licensure examination: Upon passing the written examination administered by the State Board of Nursing, graduates become eligible for licensure as practical nurses and may use the title "Licensed Practical Nurse". (The title "Licensed Vocational Nurse" is used in California and Texas.) Only graduates of programs approved by a State Board of Nursing are eligible for examination to become licensed as practical nurses.

Licensed by education: refers to issuance of a license to practice practical nursing following completion of an approved educational program in practical nursing and satisfactory achievement on the State Board licensing examination. Some states permit initial practical nurse licensure after the applicant has attended an approved program in professional nursing for a specified period of time and passed the practical nurse licensure examination.

Licensed by experience (waiver): refers to issuance of a license to practice practical nursing on the basis of satisfactory certified employment experience in practical nursing and successful achievement on the State Board licensing examination.

---

[4] *Ibid*., pp. 9-10.

Licensed in good standing: once ever issued a license to practice, the licensee holds this status unless his license is legally revoked for just cause.

Active or current licensure: licensed in good standing with license initially issued or renewed for the current year. The law provides for annual renewal and current licensure is required for active engagement in nursing practice.

Inactive licensure: licensed in good standing but licensee voluntarily does not renew license for current year. Licensee may not practice while holding an inactive license.

Licensed by endorsement: licensed by a State Board of Nursing to practice nursing in its state by virtue of holding a valid license in another state.

Board of Nursing out-of-state certification: act of a State Board of Nursing sending credentials of one of its licensees to a Board of Nursing in another state for application for licensure in that other state.

CHAPTER II

BACKGROUND AND DEVELOPMENT OF PRACTICAL NURSING IN THE UNITED STATES

THE NEED FOR HEALTH OCCUPATIONS PERSONNEL

In 1952, for the first time in our country more people were employed in service occupations than in production. Today, two out of three are employed in service areas. Occupations in the health field are providing new career opportunities for both men and women and are among those expanding most rapidly. For example, the increase in the number of persons employed in health areas from 1950 to 1960 was greater than the total number employed in the entire automobile manufacturing industry in either 1950 or 1960. Severe strain continues to be placed on the service-load capacities of the health professionals because of technical advances in the health field and society's ever-growing demand for more and improved health facilities. In an attempt to broaden their capacities for providing the best possible health services to the greatest possible number of people, health professionals are increasingly assigning many relative routine, selected and specialized functions to a newly emerging group -- supportive health-care workers. In its Health Careers Guidebook the National Health Council has identified over 200 existing types of health occupations and additional ones continue to emerge as the need dictates.

Despite the rapid growth in types and number of health workers, the demand continues to far exceed the supply. A prediction of needs in the health services came from the Surgeon General in February 1966: 10,000 additional trained and qualified workers will be needed each month, 120,000 per year for each of the next ten years to meet minimum requirements. Until there is adequate development of educational programs to prepare health workers, and a sufficient number of students enrolled in them, these needs will not be met.

More health workers must be prepared at all levels of training. Public colleges and universities have long provided occupational preparation for the health professions at the baccalaureate and higher-degree levels. Traditionally, programs to prepare supportive health-care personnel emerged in service institutions whose primary commitment is to provide health-care services. The costs of conducting such programs have necessarily been included as service charges and, therefore, have been borne by patients. Also, the mobility of our present work force precludes the retention of those trained in a particular service institution long enough for them to return services commensurate with the investment made. Many programs once administered by service institutions have been discontinued due to financial stress. Shifting the cost to a broad educational base seems appropriate and more compatible with this increased mobility of our labor force. More important, it embraces the principle of charging educational costs to educational institutions firmly committed to education and supported by the public tax base.

Today, education to prepare supportive health-care personnel for positions not requiring a baccalaureate degree, now commonly referred to as health occupations education, is a major role of public comprehensive community colleges, vocational-technical schools and adult education units. Preparatory programs range in length from two-year associate degree programs to short-term on-the-job training depending upon the field of health and the level of preparation involved. Other programs, usually of short duration, are offered for retraining and upgrading of employed health-care workers. It is necessary that every graduate from these programs be employed at his highest level of ability and practice but not above his best assured level of competency.

Examples of the many types of supportive health-care workers now being prepared in health occupations education programs are: physician's assistant, technical nurse, dental hygienist, dental assistant, dental laboratory technician, medical illustrator, x-ray technician, operating room technician, physical therapy assistant, occupational therapy assistant, nurse aides and orderlies, medical office assistants, and practical nurses.

Nursing is a health-care field in which the role of the supportive worker gained early and concentrated attention because nursing was severely challenged to increase its complement of skilled practitioners in response to ever-growing demands for service.

While there already exists a severe shortage of nurses at all levels of preparation, the demand for nursing service continues to increase. Rising rates of hospitalization, growth in public and voluntary health agencies, rapid advances in health sciences and increased employment opportunities for nurses (Table 1) are causal factors in the rising demand.

Table 1
EMPLOYMENT OF REGISTERED PROFESSIONAL
NURSES IN THE UNITED STATES -- 1964[5]

Area	Number
Hospital and Related Institutions	362,000
Private Duty	63,000
Office	47,000
Public Health	37,000
Government	25,000
Nursing Education	20,000
Industry	19,000
Military	8,500

In 1962 the Surgeon General's Consultant Group on Nursing prepared a report[6] which indicated the supply of prepared nursing personnel and projected requirements and estimated the feasibility of meeting 1970 needs. An estimated 550,000 professional nurses were practicing in the United States at the beginning of 1962. Projections of existing programs, students, and trends indicated a total of 680,000 professional nurses would be available by 1970. However, compared with the projected need estimate of 850,000 by 1970, this would leave a deficit of 170,000.

To achieve the 680,000, this report suggested that 53,000 nurses would have to complete basic professional preparation each year through 1970. In 1961, however, the total was only 30,267 graduates. The total number of graduates from all types of basic professional nursing programs for the academic year 1964-65 was 34,686. Of these, 2,510 completed associate degree programs, 26,795 completed diploma programs, and 5,381 completed baccalaureate programs. From 1960-61 through 1964-65, 62 diploma programs were discontinued, though the number of diploma graduates increased by 1,404. The 1966 projections indicate that 60 additional diploma programs will close within the next year but there is no estimate as to how many may be converted to either baccalaureate or associate degree curricula.

---

[5] United States Department of Labor, America's Industrial and Occupational Manpower Requirements 1964-75 (Washington, D. C.: U. S. Government Printing Office, 1965), p. 136.

[6] U. S. Department of Health, Education, and Welfare, Toward Quality in Nursing Needs and Goals: A Report of the Surgeon General's Consultant Group on Nursing (Washington, D. C.: U. S. Government Printing Office, 1963).

The goal of 53,000 graduates was set prior to the passage of Medicare and other legislation which will tend to further increase the demand for nursing services. The situation will be even more stressful by 1970 as predicted increases in the birth rate cause a burgeoning of the population. Also, generally high incomes and the increasing number of aged with susceptibility to long-term illness will contribute to greater promotion of preventive medicine and broader utilization of health services.

The annual survey of educational preparation for nursing, conducted by Nursing Outlook,[7] shows the trends, numbers of programs, admissions and graduates for the period 1956-57 through 1964-65. The tables of programs which prepare graduates for beginning positions in nursing show that, in 1956-57, 8.5% completed the baccalaureate program, 64.5% the diploma program, 0.7% the associate degree program, and 26.2% the practical nursing program. By 1964-65, these percentages had changed to 9.1% baccalaureate, 45.4% diploma, 4.3% associate degree,

---

7. National League for Nursing, "Educational Preparation for Nursing," Nursing Outlook, September 1966, pp. 58-61.

and 41.2% practical nursing.

Although there were percentage increases within the baccalaureate and assoicate degree programs, they were relatively small and had no major influence on the total supply of nurses. However, with the community college and vocational-technical school movement, the initiation and expansion of associate degree programs may produce a significant difference in the near future. Funds recently made available by the Vocational Education Acts for the development and implementation of associate degree programs may also add impetus to this trend. These monies have been available for such programs only since 1964. Preliminary figures cited earlier from the U. S. Office of Education indicated that in 1966 some 4,160 students were enrolled in associate degree progrmas sponsored by vocational education funds.

Probably the greatest single change in the nursing field is the emerging role of the well-prepared licensed practical nurse. It has been recognized by health professionals and the lay public that within the broad scope of nursing there are certain nursing needs which can be met by persons working with professional nurses and other health-care personnel to assist patients to return to and maintain their optimum health and functioning. As a result, the practical nurse has moved from his traditional role of a home-care worker with incidental training in health care, into hospitals and other health-care agencies with proper emphasis placed on the nursing aspects of his role. Today practical nursing is an integral and essential part of all nursing.

DEVELOPMENTS IN PRACTICAL NURSING IN THE UNITED STATES PRIOR TO 1940

It is only in recent years that practical nursing has been accorded recognition. Prior to 1940 few programs had been developed to prepare nurses at other than the professional level. In 1897 the Ballard School was established by the New York City Young Women's Christian Association to prepare "attendants for the sick"; in Brattleboro, Vermont, classes for the education of "practical nurses" were started in 1907 and home-aide courses were offered in Detroit in 1913. By 1918 the Household Nursing Association of Boston was preparing women to "nurse" in the home, but the first generally accepted training of nurse aides in hospitals was undertaken by the American Red Cross, at the request of the Surgeon General of the United States, to help staff military hospitals. Despite a seemingly slow start, there was some attention directed to the role of supportive health workers between 1917 and 1940 which did lay the groundwork for the rapid expansion of practical nursing from 1940 to the present.

The Smith-Hughes Act of 1917 provided for the promotion of vocational education by making available to the states matching funds for salaries of instructional personnel in agricultural, homemaking, and trade and industrial occupations. Funds appropriated under the trade and industrial provisions of this Act were used in the establishment of a few local programs in practical nurse education.

During and after World War I and the influenza epidemic of 1918, the demand for prepared nurses provided stimulus for the rapid growth of programs in both professional and "practical" nursing. The programs in "practical" nursing were largely experimental with no identifiable or uniform regulations or procedures to guide their development and implementation. Many professional nurses looked upon the practical nurse as one who threatened their status and posed potential employment competition.

Nevertheless, increased interest in promoting the utilization of nursing personnel prepared at less-than-professional level was expressed as early as 1923 in a published report of the findings of the Goldmark Study conducted by the Committee for the Study of Nursing Education. Initially to include only professional nurses, this study was expanded to include a group described as "practical nurses and household attendants" who in fact were performing nursing care functions. This committee made several recommendations related to the preparation of non-professional assistants:

1. that the minimum age for entrance should be eighteen and, because many older women could perform valuable service, no maximum age was set;
2. that no less than elementary education be accepted as prerequisite for training;
3. that their training period be eight or nine months in length;
4. that training should be given in institutions where simple nursing duties were performed and where the students could have responsibilities suited to their capabilities;
5. that institutions such as mental hospitals, tuberculosis hospitals and special hospitals could not provide the most suitable training because of the specialized nature of their services;
6. that the training course consist of at least 155 total hours of preparation and include elementary nursing, basic hygiene, home economics and simple cookery, care of infants, children and aged, chronic and convalescent patients, the tubercular, and obstetrical aftercare; and
7. that the states enact licensing laws to establish minimum

requirements for these health workers.[8]

The committee strongly opposed the training of professional nurses and subsidiary nurses in the same hospital except in those situations where there would be separate facilities and instructors for the two groups.[9] It felt that this program was designed to continue the preparation of persons for home nursing combined with simple household duties.

In 1926 the Committee on the Grading of Nursing Schools was organized for the purpose of studying ways and means to insure an ample supply of nursing service personnel. Its members reported that most practical nurses were no more qualified to care for chronically ill patients than were attendants and aides. This committee suggested that if professional nurses did not take refresher courses to prepare themselves for more home nursing, it would be necessary to establish schools of practical nursing to provide sufficient manpower to insure that this vital task be adequately performed.[10]

With the onslaught of the depression all phases of nursing suffered because of unemployment and the closing of many training programs. New opportunities were provided for professional nurses with the passage of the Social Security Act in 1935 and the formation of the Works Progress Administration in the same year. In its eight years of existence the Works Progress Administration provided training for almost 5,000 auxiliary health personnel such as orderlies and nurse aides, but not for practical nurses.[11] Practical nursing was not to receive its opportunity until the passage in 1946 of the George-Barden Act, which was an amendment and extension of the Smith-Hughes Act of 1917.

---

[8] Dorothy F. Johnston, History and Trends of Practical Nursing (St. Louis: C. V. Mosby Company, 1966), pp. 37-38.

[9] Ibid., p. 37.

[10] Ibid., p. 38.

By the end of the 1930's there was a tremendous shortage of professional nurses, and nurse leaders began to realize that the subsidiary health worker was a necessary element in the attempt to provide comprehensive health care to the public. Prior to 1936 the three national nursing organizations, the American Nurses' Association, the National League of Nursing Education and National Organization for Public Health Nursing had agreed there was a definite need for control of the expansion of subsidiary workers in nursing. Professional nurse leaders felt that the best way to effect this control was through legislation and that they must take the initiative to do this. However, little was accomplished until several years later.[12]

The states had been slow to enact laws for licensing practical nurses. The first state to do so was Mississippi in 1914, though there is no record that anyone was ever licensed under its provisions. Pennsylvania enacted similar legislation in 1919, but apparently little was accomplished under its provisions. In 1920, New York State enacted legislation to license "trained attendants" and 1,100 became so licensed.[13]

---

[11] Ibid., p. 41.

[12] Ibid., p. 48.

[13] Ibid., p. 54.

While throughout the nation there was mounting concern to increase the number of health workers, there was no further legislation to provide for licensing practical nurses until 1938 (in the State of New York) and no noticable growth of programs in practical nurse education until after 1940.[14] Apparently the primary reason for the delay was that the majority of professional nurses discouraged the recognition of subsidiary workers in nursing.

DEVELOPMENTS IN PRACTICAL NURSING IN THE UNITED STATES SINCE 1940

While developments in the field of practical nursing were slow and arduous prior to 1940, there has been marked acceleration since that time and the field continues to show improvement and expansion.

With the outbreak of World War II and its continuous drain of professional nurses, the practical nurse was increasingly pressed into providing nursing service in hospitals. The United States Womens Bureau reported that between 1941 and 1943 there were 17,000 practical nurses employed in registered hospitals. In 1944 an estimated 155,000 auxiliary workers were employed in 6,275 hospitals in the United States, approximately 50,000 in government hospitals, and the remainder in civilian hospitals. Practical nurses were used to such an extent that by 1943 a shortage of these workers developed. One nurses' registry in Boston reported that while it filled 2,748 calls for practical nurses, 3,113 calls remained unfilled.[15]

---

[14] Ibid., p. 54.

[15] Ibid., p. 47-48.

Indicative of this changing status of the practical nurse was the meeting in January, 1944, of the Joint Committee on Auxiliary Nursing Service composed of members from the American Nurses' Association, the National League of Nursing Education, and the National Organization for Public Health Nursing. This committee made the folowing recommendations:

> 1. that the American Nurses' Association be asked to urge its constituent state associations to initiate legislative programs leading to the licensure of practical nurses;
> 2. that State Boards of Nurse Examiners be prepared to advise state nurses' associations in drawing up bills; and
> 3. that in states not licensing practical nurses, the State Board of Nurse Examiners be considered the approving body for schools of practical nursing; or where this was not legally possible, the Boards of the state nurses' association and the state league for nursing be asked to assume this responsibility.[16]

In late 1949 the Joint Committee of Practical Nurses and Auxiliary Workers affected the future of practical nursing by recommending the use of the title "practical nurse" rather than any other title previously suggested. Moreover, in an attempt to clearly differentiate between the professional nurse and the practical nurse, the Committee accepted the following definition.[17]

> The practical nurse is a person trained to care for selected subacute, convalescent and chronic patients, and to assist the professional nurse in a team relationship, especially in the care of those more acutely ill. She provides nursing service in institutions and in private homes where she is

---

[16] Joint Committee of the National Organization for Public Health Nursing, American Nurses' Association, and National League of Nursing Education on Auxiliary Nursing Service, "Biennial Report of the National Organization for Public Health Nursing, Inc.," National Organization for Public Health Nursing News Bulletin, vol. 4 (1944), p. 16.

[17] Johnston, op. cit., p. 51.

> prepared to give household assistance when necessary. She may be employed by the lay public, hospitals, or health agencies. A practical nurse works only under the direct orders of a licensed physician or under the supervision of a registered professional nurse.[18]

Nursing Organizations: In the early years, as documented previously in this report, organizations primarily concerned with professional nursing and professional nurses assisted to give direction to the development of practical nursing. Since 1940, two organizations concerned with practical nursing and practical nurses have emerged and are providing active leadership in this field. The National Association of Practical Nurse Education and Service was established in 1941 with membership open to practical nurses and any others who wished to join. It made provision for both group and individual memberships. The National Federation of Licensed Practical Nurses was founded in 1949 with membership limited exclusively to licensed practical nurses. Both organizations are committed to supporting and promoting practical nurse education and service and the latter also states that "promoting the general welfare and interests of licensed practical nurses" is part of its purpose. These two organizations, along with the American Nurses' Association, and the National League for Nursing (formerly two organizations, the National League for Nursing Education and the National Organization of Public Health Nursing), have been active in promoting improved practical nurse education and in encouraging practical nurses to extend their contributions to the health of our nation. All four groups provide for constituent state and local organizations and attempt to cooperate at the national, state and local levels. Advisory committees for practical nurse education at these three levels include representatives from among these organizations. In 1965, the American Nurses' Association Committee on Allied Nursing Personnel stated: "Professional nursing has actively promoted employment of the licensed practical nurse to carry out those functions her training has prepared her to perform."[19]

---

[18] E. Phillips, "Joint Committee on Practical Nurses and Auxiliary Workers in Nursing Services," Fifty-sixth Annual Report of the National League of Nursing Education (New York,1950), p. 207.

Vocational Education: Vocational Education has made a major contribution to the improvement and expansion of practical nurse education. In 1946 the George-Barden Act (Title I) was passed, making additional funds available for the same categories of expenditures as those in the Smith-Hughes Act of 1917. Although there was in it no specific reference to health occupations or practical nursing as such, additional programs in practical nursing were immediately supported in some states with funds under the trade and industrial provisions.

Great concern had developed over the adequacy of health-care personnel and developing programs in practical nursing had attracted widespread interest and support as a means of helping to meet the need. Also, many states had passed licensure laws for practical nursing and found training facilities inadequate.

Probably the greatest single stimulus to the development of practical nursing came, however, with the passage of the Health

---

[19] American Nurses' Association, Health Occupations Supportive to Nursing: A Statement of Policies and Recommendations (New York, 1965).

Amendments Act of 1956 (P.L.-84-911) as Title II of the 1946 George-Barden Act. Its purpose was to improve the health of the people by assisting to increase the number of adequately trained practical nurses. Funds were authorized to provide matching monies between the federal government and cooperating states; for the first two years, matching was based on a ratio of 3:1 respectively and for the remaining three years, on a dollar-for-dollar basis. These funds were available for: salaries of personnel to carry out practical nursing programs; travel; administrative expenses, including rental of buildings not publicly owned; equipment and supplies for instruction.

During the Congressional hearings on the bill, considerable discussion centered on whether the funds should be allocated to and administered by the U. S. Public Health Service or the U. S. Office of Education. The decision was to channel the funds through the existing federal-state-local cooperative arrangment already established for vocational education within the U. S. Office of Education. Because satisfactory practical nursing programs were in operation within this structure, a measure of success could be predicted.

The Health Amendments Act of 1956 provided $5,000,000 in federal funds to be used for matching purposes in the development of practical nursing and other health occupations education programs. These monies could be used to support any health occupations program "of less than college level". In practice, a great portion of the funds have been utilized for practical nurse education and, as a result, the Act is often referred to as the "Practical Nursing Act".

This Act required that a professional nurse be employed as the direct supervisor of, or as a consultant for, the expenditure of health occupations funds, generally through the trade and industrial section of state boards for vocational education. Fron 1956 to 1963, the total number of practical nursing programs supported at least in part by public vocational education funds increased by approximately 50 per year. In fiscal 1963, 614 public practical nurse education programs were receiving financial aid from vocational education funds and approximately 60,000 full-time and part-time students were enrolled in vocational health occupations programs.

Two additional federal acts, the Area Redevelopment Act of 1961 (ARA) and the Manpower Development and Training Act of 1962 (MDTA), contained provisions for funding the training of the under-employed and the unemployed. In many cases, practical nursing and other health occupations education programs were supported with these funds; however some schools have opted to continue operation with regular vocational education funds but include MTDA students in their enrollments. By so doing they maintain greater control over student selection and administration and have more assurance of operational continuity without funding delays between class admissions. This also avoids substantial paper work and record-keeping and makes desired changes possible without the handicap of repeated clearances.

The Vocational Education Act of 1963 (P.L.-88-210) was a milestone in federal vocational education legislation. This act authorized appropriations of up to $225,000,000 annually for occupationally-oriented programs of all types except for those "generally considered professional or as requiring a baccalaureate or higher degree". The impetus of this

Act resulted in the rapid expansion of health occupations education; health personnel have been transferred from the trade and industrial branch in the U. S. Office of Education and established as an independent arm of the Bureau of Adult, Vocational and Library Programs. A similar move has been made in most state divisions of vocational education.

Preliminary data for fiscal 1966 developed by the Health Occupations Section, Division of Vocational and Technical Education, U. S. Office of Education, indicate that over 88,000 persons were enrolled in health occupations education programs supported in part with funds provided by the Federal Vocational Education Acts. The majority of these enrollments were in programs in the nursing field; 4,160 in associate degree nursing, 47,322 in practical (or vocational) nursing, and 14,202 in nurse-aide programs.

Programs in Practical Nurse Education: Only in recent years have educational programs for practical nurses obtained maturity and stability. The number of practical nurse education programs in the United States has grown from an estimated 11 in 1930 to 1,149 in 1967. See Table 2.

Between the funding of the Health Amendments Act in August, 1956, and October, 1958, there was a 53% increase in the number of new programs established. The percentage of increase directly attributable to this Act is unknown, but it was probably a major factor in this accelerated growth. Table 2 reflects the possible effects of three other major federal acts: the Area Redevelopment Act of 1961, the Manpower Development and Training Act of 1962, and the Vocational Education Act of 1963.

Table 2[20]

NUMBER OF STATE-APPROVED PROGRAMS OF PRACTICAL AND VOCATIONAL NURSING, ACADEMIC YEARS 1955-56 TO 1965-66

Academic Year	Number	Percent Increase
1966-67	1,149	6.3
1965-66	1,081	9.8
1964-65	984	7.8
1963-64	913	7.3
1962-63	851	15.2
1961-62	739	6.6
1960-61	693	4.8
1959-60	661	8.9
1958-59	607	16.7
1957-58	520	18.4
1956-57	439	10.8
1955-56	396	----

The number of practical nurse graduates has increased from 16,635 in 1960-61 to 27,644 in 1966-67.[21] Graduates continue to be predominately women, 97% in 1965-66.[22] The remaining three percent represents a proportionately higher percentage of men than are graduated from professional nursing schools.

At one time students in practical nursing were predominately over 35 years of age. In 1960 the average age had declined to 25. In 1952 the median age of students in the public vocational programs was 32; in 1960 it was 27. In the hospital schools the median age in 1960 was twenty-one. Fairly wide differences exist between states and regions.[23]

---

[20] American Nurses' Association, Facts About Nursing: A Statistical Summary, 1967. The 1955-56 figures come from Nursing Outlook vol. 9 (1960), pp. 487-489. The 1966-67 figures come from National League for Nursing, Facts About Practical Nursing, 1968.

[21] National League for Nursing, "Educational Preparation for Nursing," op. cit., p. 59. The 1966-67 figures come from Facts About Practical Nursing, 1968, op. cit.

[22] American Nurses' Association, Facts About Nursing, 1967, op. cit., p. 180.

The educational background of students in practical nursing has shown a marked increase from 1923, when completion of grammar school was recommended as a prerequisite for training. In 1960, approximately two-thirds had completed secondary school. According to the 1950 Census, fewer than 40% of the practical nurses in the United States had completed high school; in 1959-60, 66% held high school diplomas and by 1965-66, 76% of all students admitted to practical nursing programs had completed high school.[24] While the educational requirements for admission to programs varies among states, it appears that among younger student groups there is a higher proportion of secondary school graduates.

Table 3 shows the several types of agencies providing administrative control among the 1,149 programs existing in 1967 and the percentage of the total administered by each.[25]

Table 3
NUMBER OF STATE-APPROVED PROGRAMS OF PRACTICAL NURSING
BY TYPE OF ADMINISTRATIVE CONTROL, OCTOBER 15, 1967[26]

Administrative Control	Number of Programs	Percent
Trade, technical or vocational school	624	54.3
University, college or junior college	188	16.4
Hospital	234	20.4
Government agency other than hospital	15	1.3
Other independent agency	12	1.0
Secondary school	76	6.6
TOTAL	1,149	100.0

---

[23] National League for Nursing, Education for Practical Nursing, 1960 (New York, 1962), p. 22.

[24] American Nurses' Association, Facts About Nursing, 1967, op. cit., p. 182.

[25] National League for Nursing, Facts About Practical Nursing, op. cit.

[26] Ibid.

Development of Standarized Licensure Examinations: In the formative years of practical nurse education, individual programs constructed their own selection and achievement tests and each state developed its own licensure examination. As commonalities among states emerged, efforts were made to pool resources and obtain uniformity. In 1946 the Department of Measurement and Guidance of the National League for Nursing Education developed a practical nurse competency test which was administered in two states. Further refinements and validations resulted in the construction of a new examination in 1950. By 1958, all but one state had joined the Practical Nurse Licensure Test Pool established by the National League for Nursing. This Test Pool provided state boards of nursing a common service whereby test items could be suggested, evaluated, and included in standardized instruments for licensure examinations. By 1965, as at the present, all states but Texas used the State Board Test Pool examination obtained from the National League for Nursing for licensure examination purposes.[27]

From July 4, 1949 through September 13, 1955, scores achieved on these tests were reported in percentages and each state established its own passing score. Based on 100%, most states set the passing score at 70%. Since September 13, 1955, test results have been reported in standardized scores: 500 = the mean, 100 = the standard deviation and the majority of states have determined the passing score to be 350.

The League also developed the Pre-admission and Classification Examination (PACE) in 1950 as a multifactor test for use in the

---

27. National League for Nursing, State-Approved Schools of Practical and Vocational Nursing (New York, 1965), p. 13.

selection of students in practical nursing. Refinements of these tests are in use today. The testing service of the National League for Nursing has further provided for uniformity and self-evaluation through the development of achievement tests to be administered within the program at intervals during the educational period. In 1966 two such tests were available -- Three Units of Content (TUC) and Nursing Including Pharmacology (NIP). Sub-scores are provided in anatomy, physiology, basic nursing procedures, nutrition, and diet therapy. Scores on the NIP test, used near completion of the program, tend to correlate highly with scores on the licensure examination.

Licensure Provisions: As was noted earlier, in 1938 New York State became the first to pass legislation to license practical nurses. Laws providing for the licensure of practical nurses have now been passed in all fifty states as well as the District of Columbia, Guam, Puerto Rico and the Virgin Islands. The District of Columbia was the last to achieve this status, with legislation enacted in 1960.

Although there is a degree of legislative uniformity, there is also a variety of provisions among states. Fifteen of the 54 jurisdictions have mandatory laws which define practical nursing and prohibit performance of nursing functions by unlicensed persons.[28] The remaining 39 have permissive licensure which merely protects the title "licensed practical nurse" by restricting its use only to those issued a license to practice as a practical nurse. No restrictions, except those made by the employer, are placed on those who practice without a license.

---

[28] American Nurses' Association, *Facts About Nursing*, 1967, *op*. *cit*., p. 195.

Administration of the licensure law differs among jurisdictions. The composition of Boards of Nursing varies. Some are composed of practical nurses only, some have both professional and practical nurse representation, and still others are composed of professional nurses only. Boards have assumed responsibilities for the establishment of standards for programs, students and faculty as well as for licensing. Thirty-six of the states have included practical nursing legislation under the general nursing act, while 14 have instituted separate acts for practical nursing. Though differences exist, each state has its own board of nursing, laws of nursing practice, a system for state approval of schools, and minimum requirements for the holder of a license.[29]

Initial legislation for licensure in each state has followed a pattern similar to the initiation of licensure for other licensed occupations. That is, a time period is provided whereby all those presently employed in the occupation, or who have been employed in the occupation according to some established critieria, are permitted to obtain a license through waiver of the new requirements. Such a "grandfather provision" recognizes the basic rights of successful practitioners, maintains the present work force, and avoids present practitioners' being legislated out of employment by the institution of new requirements. In the case of practical nursing, affidavits from physicians or professional nurses were required to certify the competency, character, and experience of applicants. An oral or written examination or both may or may not have been an additional requirement.

---

[29] National League for Nursing, State-Approved Schools of Practical and Vocational Nursing, op. cit., pp. 12-13.

Estimates of the Number of Practical Nurses: While there continues to be a relatively stable number of professional nurse graduates, the number of nurses prepared to practice practical nursing has increased rapidly. Early in the century the United States Census Bureau listed 109,000 "practical nurses and midwives". The number appears large and significant but, as was indicated earlier, most of those practicing had little or no formal training and employment was restricted primarily to household activities. With the changed role and concept of the practical nurse has come a growing acceptance of the vocation. Increased utilization of the practical nurse in hospitals is reflected in the relative ratios of professional and practical nurses; in 1940 hospitals employed 1.6 practical nurses for every 10 professionals, and in 1959 the proportion had increased to 3.1 for every 10.

In 1959 the National League for Nursing reported a total of 237,000 licensed practical nurses. One means of estimating the supply of active practical nurses is by recording the number of persons who renew their licenses each year. During 1964, a total of 279,448 practical nurse licenses were renewed by the states.[30] Because a small percentage of the nursing population holds a current license in two or more states, this figure is somewhat inflated.

Continued Demand: This country continues to be faced with a shortage of skilled nurses. There are many vacancies in health service agencies and many unfilled faculty positions in nursing education programs. It is unlikely this situation will be alleviated to a significant degree in the immediate future. Even to maintain the status quo, all types of present nursing education programs will have to be continued and new ones added. At present the greatest hope for improving the low nurse-to-population ratio is the practical nurse who, in a comparatively short period of time, can be prepared at a competent level in nursing to effectively serve in a role supportive to the health professionals.

---

[30] American Nurses' Association, Facts About Nursing, op. cit., p. 192.

Practical nursing, as practiced by licensed practitioners, has become a defined and accepted vocation. Because this group of health workers has so well demonstrated its capabilities there is a constantly growing demand for additional persons prepared in this field of nursing.[31]

---

[31] National League for Nursing, Licensed Practical Nurses in Nursing Services (New York, 1965), p. 72.

CHAPTER III

DEVELOPMENT OF PRACTICAL NURSING IN IOWA

In the years prior to and during World War II a significant number of persons were employed as "practical nurses" in Iowa. They had little or no formal preparation and their role consisted primarily of simple home nursing and housekeeping activities. After World War II, when it became apparent that the demands for nursing service in Iowa would continue to exceed the supply, professional nurse leaders in the State began to realize the necessity of fostering the practical nurse education and licensure movement which had already become established in many other states throughout the nation.

State Legislation: In 1947 a bill to provide for licensure of practical nurses was introduced in the State Legislature by the professional nurse organization, the Iowa State Nurses' Association (now the Iowa Nurses' Association), but this bill was lost in the Sifting Committee of the Senate.

After this unsuccessful attempt, the Iowa State Nurses' Association in 1949 again sponsored an amendment to the Iowa Nurse Practice Act which was passed by the State Legislature and became effective July 4th of that year. This amendment provided for the licensure of practical nurses and, provided the practitioner was currently licensed in good standing, for annual licensure renewal. This law defined practical nursing as follows:

> For the purpose of this title the practice of nursing as a licensed practical nurse shall mean the performance of such duties as are required in the physical care of a convalescent, a chronically ill or an aged or infirm patient, and in carrying out such medical orders as are prescribed by a licensed physician or nursing services (sic) under the supervision of a registered nurse, requiring the knowledge of simple nursing procedures but not requiring the professional knowledge and skills of a registered nurse.[32]

Although the Iowa State Nurses' Association had proposed and supported legislation which would require mandatory licensure of all who nurse for hire, the bill which was finally adopted provided for permissive licensure of practical nurses which merely protected the title "licensed practical nurse" in the statement:

> No person shall assume the title of 'Licensed Practical Nurse' or use the abbreviation 'LPN' after his name or in any manner hold himself out or profess to be a licensed practical nurse without first procuring a license under the provisions of this title.[33]

The law required that every applicant for a license to practice nursing as a practical nurse shall:

1. have attained the age of nineteen years;
2. be of good moral character;
3. have completed at least a course of study through the tenth grade (there was no provision for equivalency);
4. be a citizen of the United States;
5. have completed a course of integrated study in and hold a diploma from a school of nursing for licensed practical nurses or have successfully completed at least one year of a course of study in a school of nursing for registered nurses, and have completed all clinical training as is required for a licensed practical nurse;

---

[32] Law of Iowa as it Pertains to the Practice of Nursing (Des Moines: State of Iowa, 1949), p. 7.

[33] Ibid., p. 16.

6. pass an examination on subjects relating to the duties and services of a licensed practical nurse; and,

7. pay a $10.00 licensure fee.[34]

The Iowa Board of Nurse Examiners (now the Iowa Board of Nursing) was charged with responsiblities of examining candidates for licensure and approving education programs in practical nursing. This Board was, at that time, and continues to be, composed of five registered professional nurses appointed by the Governor from a list of suggested candidates submitted by the Iowa Nurses' Association. Members serve for a term of five years and no member may serve more than two consecutive terms.

The bill provided for a two-year time period, July 4, 1949 through July 3, 1951, in which those who had been successfully employed in the occupation could become licensed through waiver of the new requirements. This "grandfather clause" recognized the basic rights of successful practitioners, helped to maintain the existing work force and avoided legislating practitioners out of employment because of the requirements of the new law. Affidavits from physicians or professional nurses were required to certify the competency, character and experience of applicants for licensure as a practical nurse and each applicant was required to pay a licensure fee and pass the licensure examination administered by the Iowa Board of Nurse Examiners. With the expiration of this waiver period on July 3, 1951, all applicants were required to have completed a preparatory education program as required in the law.

In 1963 the Nurse Practice Act was amended by House File #554 passed by the Iowa General Assembly. The revision became effective July 4,

---

[34] Ibid., pp. 13-14.

1964. In addition to changing the name of the "Iowa Board of Nurse Examiners" to the "Iowa Board of Nursing", it lowered the licensure age from 19 to 18, changed the basic education requirement from 10th grade with no equivalency to graduation from an accredited high school or the equivalent, deleted the citizenship requirement and raised the licensure fee from $10.00 to $20.00.[35]

State Board Examination: The Iowa Board of Nursing administers the National League for Nursing Test Pool Examination for licensure. The content of the examination is related to the preparation and functions of the practical nurse. All candidates for licensure as a practical nurse in Iowa are required to file an application accompanied by the necessary credentials, pay a fee, and perform successfully in the examination as determined by the Board. A comparatively few fail to pass this test on the first attempt but, should this occur, the applicant is not restricted in the number of times he may retake the test but is required to pay the fee each time.

Practical nurses who have written the NLN Test Pool examination and become licensed in any other state may be licensed in Iowa by endorsement. This means they pay the licensure fee but are not required to rewrite the test. Conversely, practical nurses licensed in Iowa may, by the same procedure, become licensed in other states.

The Iowa Board of Nursing first administered the practical nurse licensure examination in September of 1949 and has administered it semi-annually since that time. The statute and Board policy have made

---

35. Law of Iowa as it Pertains to the Practice of Practical Nursing (Des Moines: State of Iowa, 1964), pp. 13-14.

no provision for maximum age for licensure. Table 4 is a resumé of all practical nurse licenses issued by the Iowa Board of Nursing for its fiscal years 1949-50 through 1965-66.

Role and Functions of the Licensed Practical Nurse Defined: A clear definition of the function of the licensed practical nurse was one of the first and most disturbing problems which confronted the licensed practical nurse herself, the agencies which employed her, and the professional nurses with whom she worked. The initial formal request for a study and definition of these functions came from the General Duty Section of the Iowa Nurses' Association. From the regional conferences of the Iowa Hospital Association and the Iowa State Nurses' Association held in January 1953 came a recommendation that a committee be appointed which would include representation from these two organizations and the Licensed Practical Nurse Association of Iowa. This committee prepared a list of functions to serve as a guide to nursing services or agencies and institutions employing practical nurses. It provided the guidelines for curriculum development in the early years of planning for the expansion of practical nurse education programs in Iowa. Later guidelines became available when a statement of functions of the licensed practical nurse was first published nationally in 1957 and elaborated on in 1964. This statement was approved by the Executive Board of the National Federation of Licensed Practical Nurses in October 1963, and by the Board of Directors of the American Nurses' Association in January 1964.[36]

---

36. American Nurses' Association, Inc., Statement of Functions of the Licensed Practical Nurse (New York, 1964).

Table 4
RESUMÉ OF PRACTICAL NURSE LICENSURE IN IOWA, BY FISCAL YEAR
JULY 1, 1949 -- JUNE 30, 1966

Fiscal Year July 1, 1949 to June 30, 1966	No. Writing the Exam	No. Who Failed First Exam	No. of Repeats Who Cleared Their Records	% Who Passed	No. of Initial Licenses Issued	No. endorsed from Other States	No. Endorsed to Other States	No. of Licenses Renewed	Total No. Licenses Issued from 1949 to Present	Percentage with Active Licensure
1949-1950	345	19	3	94.2	325	2	-	-	327	-
1950-1951	1151	97	31	89.9	1035	2	-	327	1364	100.0
1951-1952	272	45	20	64.0	174	2	-	1356	1540	99.5
1952-1953	26	-	-	100.0	226	3	10	1512	1569	98.2
1953-1954	37	-	-	100.0	37	9	12	1541	1615	98.3
1954-1955	65	6	4	90.8	59	6	11	1541	1680	95.5
1955-1956	98	1	-	99.0	97	23	18	1586	1800	94.8
1956-1957	132	-	-	100.0	132	11	23	1672	1943	93.4
1957-1958	111	2	1	98.2	109	10	41	1759	2062	91.1
1958-1959	161	4	3	97.5	157	14	43	1841	2233	90.1
1959-1960	171	3	1	96.5	165	25	40	1963	2423	88.8
1960-1961	199	5	3	97.5	194	44	45	2063	2661	86.5
1961-1962	250	3	1	98.4	246	30	55	2316	2937	88.2
1962-1963	234	2	2	99.1	232	46	65	2503	3215	86.5
1963-1964	283	5	2	97.9	277	74	62	2729	3566	86.4
1964-1965	357	6	6	97.8	349	68	88	2754	3983	79.6
1965-1966	379	10	3	96.3	365	80	80	2980	4428	77.3
TOTALS	4271	208	80	93.2	3979	449	593			

Note: The report on the findings in this sub-study is based on data collected in the Iowa Board of Nursing offices through December 31, 1965 and treated by calendar year. The above Table, however, is information obtained from the published report of this Board whose official records are based on a fiscal year, from July 1 through June 30 each year. The discrepancy in total number of Iowa licenses issued, as shown between the sub-study report (4,360) and the above Table (4,428), reflects the additional 68 licenses issued during the six months period, from December 31, 1965 through June 30, 1966.

This statement described the role and functions of the practical nurse as follows:

> "Role: The work of the LPN is an integral part of nursing. The licensed practical nurse gives nursing care under the supervision of the registered professional nurse or physician to patients in simple nursing situations. In more complex situations the licensed practical nurse functions as an assistant to the registered professional nurse.
>
> *Functions: The selection of the functions or the specific procedures to be performed by the LPN depends upon a realistic appraisal of the elements within the situations, such as the complexity of scientific principles underlying the procedure or function; the ability and skills the LPN has acquired and demonstrated; the amount and character of the supervision required by the LPN to perform the functions; and the patients' needs and the ability of the LPN to provide safe nursing care to meet those needs.*
>
> In this context, the LPN performs the following functions:
>
> A. Participates in the planning, implementation, and evaluation of nursing care in complex situations, and in giving nursing care in simple nursing situations by:
>
> 1. Providing for the emotional and physical comfort and safety of patients through:
>
>   a. Understanding of human relationships between and among patients, families and personnel.
>   b. Recognizing and understanding cultural backgrounds, spiritual needs; respecting the religious beliefs of individual patients.
>   c. Recognizing and understanding the effects of social and economic problems upon patients.
>   d. Protecting patients from behavior that would damage their self-esteem or relationship with families, other patients or personnel.
>   e. Participating in the development, revision, and implementation of policies and procedures designed to insure comfort and safety of patients and personnel.
>   f. Assisting the patient with activities of daily living and encouraging appropriate self-care.
>   g. Considering need of the patient for an attractive, comfortable and safe environment.
>
> *For effective practice the LPN must know and utilize fundamental principles of human behavior and have an appreciation*

of the effects of stress upon individuals and groups.

A practical understanding of human growth and behavior makes it possible to note signs of change or disturbance in the patient's activity patterns. These may relate to illness, to individual responses to the institutional environment, and to personnel.

Representation and participation on committees and in conferences relevant to personnel and nursing care utilizes staff resources to develop a mutual understanding of the individual's role and responsibility in nursing service, e.g. a Committee on Infection Control.

2. Observing, recording and reporting to the appropriate person:

    a. General physical and mental condition of patients, signs and symptoms which may be indicative of change.
    b. Stresses in human relationships between patients and patients' families, visitors and personnel.

3. Performing nursing procedures for which the preparation of the LPN has provided the necessary degree of skill and judgment, such as:

    a. Administration of medications and treatments prescribed for the patient.
    b. Preparation and care of patients receiving specialized treatments.
    c. Performance of special nursing techniques in caring for patients with communicable diseases.
    d. Practice of first-aid measures.
    e. Preparation and after care of equipment for treatments, including sterilization and observation of aseptic techniques.

4. Assisting with the rehabilitation of patients according to the patient care plan through:

    a. Awareness of and encouraging the interests and special aptitudes of patients.
    b. Encouraging patients to help themselves within their own capabilities in performing activities of daily living.
    c. Knowledge and application of the principles of prevention of deformities; the normal range of motion; body mechanics and body alignment.
    d. Utilizing the community resources and facilities for continuing patient care.

B. Promoting effectiveness of the employing health service agency through:

   1. Utilizing opportunities in contacts with patients' relatives to promote better understanding of policies pertaining to the health service.

   2. Fostering cooperative effort through understanding the functions of all personnel involved in patient care.

   3. Utilizing community resources and relationships for better understanding by the public of health services."[37]

Licensed Practical Nurse Organizations: In June, 1950 a group of 46 practical nurses who had been licensed to practice in Iowa following the provision for licensure of July 4, 1949, met in Des Moines and organized the Licensed Practical Nurse Association of Iowa. Within six months membership had increased to 250 and by 1966, to 456. Between 1951 and 1952 the Licensed Practical Nurse Association of Iowa adopted articles of incorporation, became affiliated with the National Federation of Practical Nurses, and held an agency membership in the National Association for Practical Nurse Education. The latter membership was discontinued when membership in the Department of Practical Nurse Education of the National League for Nursing became available. The Licensed Practical Nurse Association of Iowa continues to contribute to the Federation's activities. Several Iowa licensed practical nurses have held positions of leadership in this national organization; currently, one is serving as 1st Vice-President and another as a member of its Board of Directors.

In December, 1952 the Licensed Practical Nurse Association of Iowa agreed to endorse and promote the National Association for

---

[37] Ibid.

Practical Nurse Education 64-hour Refresher Courses for licensed practical nurses throughout the state. In most instances these courses, taught by registered professional nurses, were particularly helpful to those practical nurses who were licensed under the waiver on the basis of experience.

Between its establishment in June, 1950 and December, 1953, the Licensed Practical Nurse Association of Iowa made significant contributions by working with other groups which had mutual or common interests in recommending standards for the occupation; this significant and cooperative role continues. This Association wrote and adopted a code of ethics for licensed practical nurses, developed a recommended list of personnel policies which it sent to all hospitals and nursing homes in Iowa, and sponsored and continues to sponsor workshops and short-term courses for the improvement of occupational skills. It worked vigorously and successfully in cooperation with other health professional and occupational groups for the 1964 revision of the Nurse Practice Act.

Practical Nurse Education in Iowa: The first program in Iowa to prepare practical nurses was the Mercedian School of Practical Nursing, a private (parochial) program conducted by St. Joseph's Mercy Hospital in Marshalltown. It admitted its initial class in 1948 with fourteen students enrolled in an 18-month preparatory program. In 1956 this program, in compliance with standards set by the Iowa Board of Nursing, was reduced to one year in length. The admission age was 18. Applicants under 25 were required to have a high school diploma while a minimum of 10th grade completion was required for those over 25. The latter criterion was an attempt to encourage physically and mentally able women in their forties and fifties to plan careers in practical nursing.

Soon after the legislation pertaining to practical nursing was enacted in 1949, professional nurse leaders in Iowa began to recognize the importance of planning practical nurse education on a state-wide basis. Under the sponsorship of the Iowa Board of Nurse Examiners, a meeting was held in Des Moines on July 38, 1950 to discuss the future of practical nurse education in the State. Those present represented the State Department of Public Instruction, Des Moines hospitals, the Iowa State League of Nursing Education (now the Iowa League for Nursing), the Licensed Practical Nurse Association of Iowa, the Iowa State Department of Health and Iowa State Nurses' Association's Committee on Aid to the Practical Nurse. As a result of this meeting two significant recommendations were made:

(1) to establish one school of practical nursing to serve as a "pilot" school in which the success of the training program could be observed; and,

(2) to form a State Advisory Committee on Practical Nurse Education which would act as a clearing agency for location of schools, assist schools to obtain official approval, aid in the recruitment of faculty and students, assist the licensed practical nurses in their organizational activities, and act as a coordinating agency between schools, state and national agencies concerned with practical nurse education.

In January 1953, a first class (six students) was enrolled in an experimental-demonstration program in the Department of Practical Nurse

Education of the University of Iowa. A second class of 23 students was enrolled in September of that year. This program was designed to be one year in length and included basic instruction in fundamentals of nursing, body structure and functions, nutrition, home management, and personal and community hygiene. The students received classroom instruction concurrent with supervised clinical practice in the nursing care of mothers and infants, children and adults. While the amount of supervised clinical practice was limited during the first month of instruction, this was gradually increased to 20 hours per week in selected clinical areas of University Hospitals and in a nursing home setting. Throughout the year the combination of classroom instruction and supervised clinical practice averaged 26 to 30 hours per week. This was a departure from the traditional pattern of practical nurse education in which all formal classroom instruction was concentrated in a 16-week preclinical period, followed by a clinical period during which the student was assigned to a nursing area for approximately 40 hours per week.

To a large extent, the development of all facets of this experimental-demonstration program has served as a model and has provided guidelines for the development of all programs in practical nursing established in Iowa since 1953.

By mid-1953 the tangible evidence of progress made in the field of practical nursing in Iowa included: (1) an amendment to the Iowa Nurse Practice Act which provided for the licensure of practical nurses and the approval of educational programs to prepare them; (2) the interest of the Iowa State Nurses' Association, the Iowa League for Nursing Education, and the Iowa Hospital Association in the development of practical nursing; (3) the organization of the Licensed Practical Nurse Association of Iowa which was active in the sound development of practical nurse education and service; (4) cooperative relations between organized practical and professional nursing groups; (5) one well-established hospital school for practical nursing; (6) an experimental-demonstration program in practical nurse education located at the State University of Iowa; (7) workshops and institutes in the field of practical nurse education, conducted by the University; and (8) cooperative efforts expended by hospital administrators, professional nurses and licensed practical nurses to study and define the functions of the licensed practical nurse. These developments laid the foundation for continued thoughtful planning and launched practical nursing into what has become a major role in providing nursing care to the people of Iowa.

Between 1953 and 1955 two additional programs to prepare practical nurses were established: St. Luke's Hospital School of Practical Nursing, a private (parochial) program in Cedar Rapids, and the Division of Practical Nurse Education of the Clarinda Junior College, administered by the local public school system. Since 1955, with one exception, the expansion of practical nurse education in Iowa has taken place in the public school system with cooperation from Vocational Education. This one exception is the Antonion School of Practical Nursing, a private (parochial) program administered by St. Anthony's Hospital in Carroll. See Table 5 for the location, type of administration, and year of establishment of the 23 programs in practical nursing which have existed in Iowa. All of these programs, each one year in length, are state-approved by the Iowa Board of Nursing and those partially funded with federal and state monies also have been approved by the State Board of Public Instruction.*

Table 5
YEAR IOWA'S TWENTY-TWO PROGRAMS IN PRACTICAL NURSING
ADMITTED FIRST CLASS
BY LOCATION AND TYPE OF ADMINISTRATION

Calendar Year	Location	Type of Administration	
1948	Marshalltown[a]		Private (Parochial)
1953	Iowa City (U. of I.)[a,c]	Public	
	Cedar Rapids[a]		Private (Parochial)
1955	Clarinda[a,b]	Public	
1957	Waterloo[a]	Public	
1958	Des Moines[a]	Public	
	Carroll[a]		Private (Parochial)
1960	Davenport[a]	Public	
1962	Clinton[a]	Public	
	Mason City[a]	Public	
	Ottumwa[a]	Public	
1963	Ames[a]	Public	
	Sioux City[a]	Public	
1964	Centerville[a]	Public	
1965	Burlington[a]	Public	
	Estherville[a]	Public	
1966	Cedar Rapids	Public	
	Cherokee	Public	
	Council Bluffs	Public	
	Dubuque	Public	
	Fort Dodge	Public	
	Harlan	Public	
1967	Calmar	Public	
TOTALS	23	20	3

[a] For the major research project, all Iowa Practical nursing programs in operation in 1965, public and private, were contacted as possible participants. To qualify for participation, it was necessary that a program had graduated at least one class prior to September 1, 1966. All sixteen programs in operation in Iowa qualified, wished to participate, and were accepted.

[b] This program was in abeyance the 1959-60 school year because of inability to secure qualified faculty.

[c] This program, having effectively served its experimental-demonstration purpose, was phased out at the completion of its 1966-67 school year.

---

* See Appendix for the official name and the address of the existing 22 programs.

Vocational Education's Contribution to Practical Nursing Education in Iowa: As early as 1950, under the direction of the Division of Vocational Education (now the Vocational Education Branch) of the Iowa State Department of Public Instruction, a committee made specific plans for a pilot-demonstration program in practical nursing to be established in a community where vocational education facilities were available. For this purpose, the first state funds for practical nurse education were allocated to the Vocational Education Branch by the State Legislature in 1951. This program was to have been established in Des Moines but did not materialize because professional nurse faculty members could not be obtained.

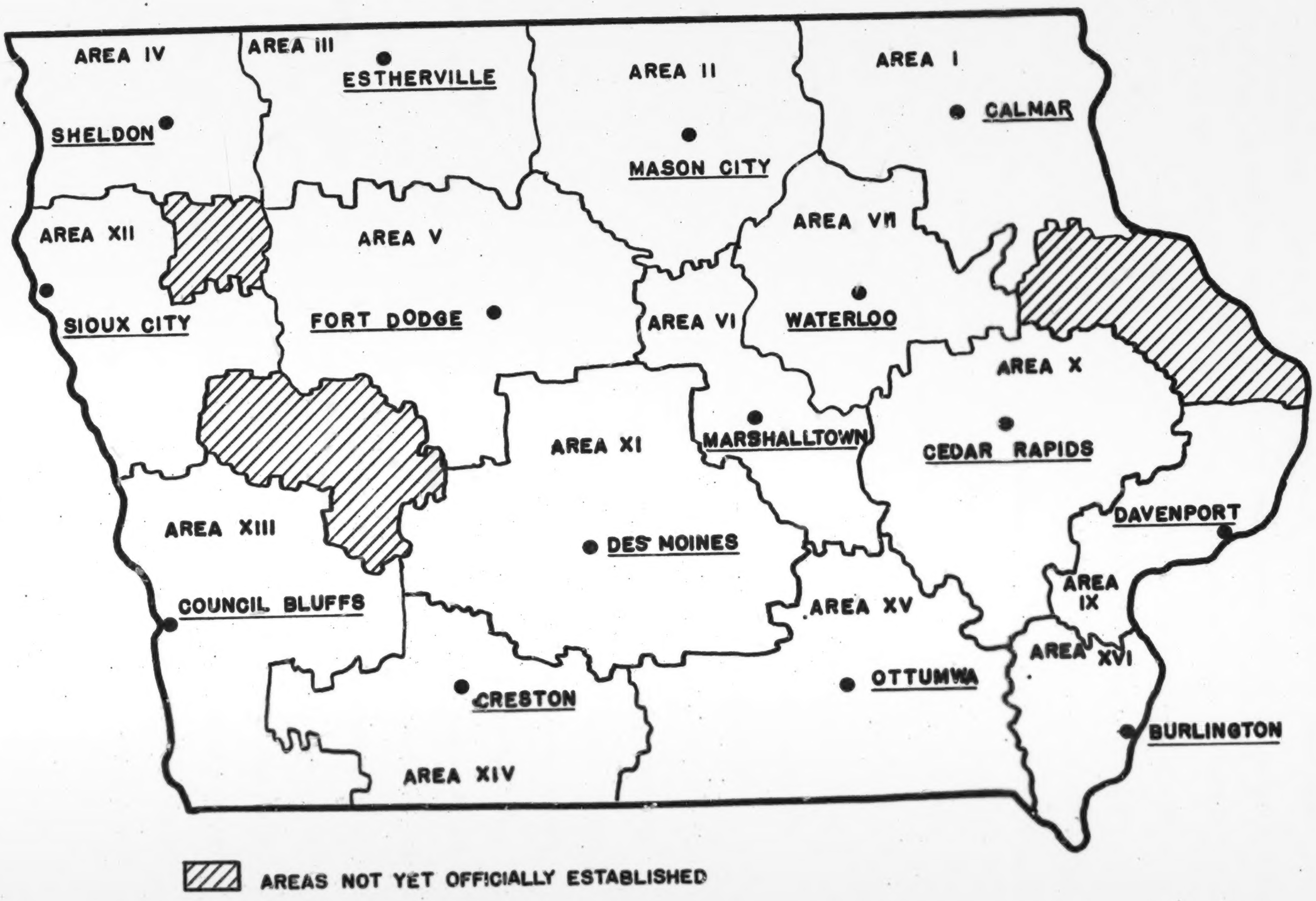
From 1947, when serious consideration was first given to the development of practical nursing in Iowa, through 1956, the growth rate of programs in practical nurse education was not dramatic. In 1956 federal legislation provided vocational education funds for partial reimbursement of the operational costs of programs in health occupations education administered by public school systems in cooperation with the department of education in each state. These programs prepare students to become health care workers for employment in positions not requiring a baccalaureate degree and include those which prepare practical nurses.

For a state to receive these federal funds for this purpose, its department of education was required to have a professional nurse consultant to supervise the expenditure of the funds and assist with the planning and implementation of local programs. At the request of the Iowa Department of Public Instruction, The University of Iowa agreed to cooperate with the Division of Vocational Education of that Department to provide supervisory, consultant and teacher-education services for health occupations education programs administered by local school systems throughout Iowa. Miss Elizabeth E. Kerr, R. N., M. A., then assistant professor in the University's College of Nursing and Director of its experimental-demonstration program in practical nurse education, served as the consultant on a part-time basis from 1956 until 1958. She then became the full-time chief consultant for health occupations education in the Iowa Vocational Education Branch and continued to guide the development of the state-wide program, maintaining her office at the University of Iowa, College of Nursing. From 1956 to 1965 Miss Kerr assisted local school systems to develop and implement 13 post-high school programs in health occupations education: 11 in practical nursing, one in medical office assisting and one in medical laboratory assisting.

In 1965 the sixty-first Iowa General Assembly legislated provisions for the establishment of area schools in the State. See page 51 for a map of the areas and the administrative locations of each. To date, 15 area schools have been organized; 11 are community colleges offering courses in both vocational-technical education and in the arts and sciences, and four are vocational-technical schools. Since the enactment of this legislation, all health occupations education programs administered by local community school districts, with one exception, have been transferred to area school administration. In addition to those acquired by transfer, many of the 15 area schools have developed new programs.

The Program in Health Occupations Education of The University of Iowa: Because of the increasing scope of health occupations education,

IOWA MERGED AREA SCHOOL DISTRICTS


AREA IV
SHELDON
AREA III
ESTHERVILLE
AREA II
MASON CITY
AREA I
CALMAR
AREA XII
SIOUX CITY
AREA V
FORT DODGE
AREA VI
AREA VII
WATERLOO
AREA X
MARSHALLTOWN
CEDAR RAPIDS
AREA XI
AREA XIII
DES MOINES
DAVENPORT
AREA IX
COUNCIL BLUFFS
AREA XV
AREA XVI
CRESTON
OTTUMWA
BURLINGTON
AREA XIV
AREAS NOT YET OFFICIALLY ESTABLISHED

2

consultant services were expanded in July, 1965 and a new department, the Program in Health Occupations Education, was established in the Division of Medical Services (now the Division of Medical Affairs) of the University. This Program is under the direction of Miss Kerr, who now holds the rank of Associate Professor in the College of Medicine. Its staff continues to serve as the professional staff of the Health Occupations Education Section, Vocational Education Branch of the Iowa Department of Public Instruction. In addition to providing consultative and coordinating services for public programs in health occupations education in Iowa, the responsibilities of the Program include curriculum development, instructional materials development, the expansion of teacher education, and the conduct of related research and studies.

The Program, which promotes and implements the state-wide program for health occupations education, is housed in a well-equipped single building on the University campus where assistance is available from the professional health and education colleges. In addition to serving public education institutions, the services of this office are available, upon request, to private programs even though reimbursement from federal funds is not provided for their operation.

At the present time publicly administered preparatory and supplemental programs in health occupations education are available in 14 of the 15 existing area schools. Preparatory programs are usually one or two years in length and are of post-high school level. Full-time enrollment is required. These programs provide individuals with the necessary knowledge and skills to function as effective members of the health care team. Supplemental programs consist of short-term courses

TABLE 6
HEALTH OCCUPATIONS EDUCATION ENROLLMENTS IN ONE AND TWO-YEAR PREPARATORY PROGRAMS
1966-67 and 1967-68

Area	City	Type of Program	Enrollment 1966-67 M	Enrollment 1966-67 F	Enrollment 1967-68 M	Enrollment 1967-68 F
I	Calmar	Prac. Nsg.			1	15
II	Mason City	Prac. Nsg.		30	1	29
		Assoc. Degree in Nsg.			1	29
III	Estherville	Prac. Nsg.		17		18
V	Fort Dodge	Prac. Nsg.	1	21		21
		Assoc. Degree in Nsg.			1	32
		Medical Ass't.		15		16
VI	Marshalltown	Dental Ass't.				15
VII	Waterloo	Prac. Nsg. (2 classes/year)		64		60
		Med. Lab. Ass't. (2 classes 67-68)				22
IX	Davenport	Prac. Nsg. (2 classes/year)		55	2	57
		Med. Lab. Ass't. (2 classes 67-68)	1	11	1	17
	Clinton	Prac. Nsg.		19		20
X	Cedar Rapids	Prac. Nsg. (2 classes 67-68)		20		44
		Dental Ass't.				15
		Medical Ass't.				16
XI	Des Moines	Medical Ass't.			1	23
		Dental Ass't.				23
		OR Tech.			3	19
XII	Sioux City	Prac. Nsg.		39	1	39
		Dental Ass't.				6
XIII	Council Bluffs	Prac. Nsg. (2 classes 67-68)		22	2	38
		Medical Ass't.				10
	Clarinda	Prac. Nsg.	2	15		17
	Harlan	Prac. Nsg.	1	15		24
XV	Ottumwa	Prac. Nsg.	4	40	3	47
	Centerville	Prac. Nsg.	2	15		18
XVI	Burlington	Prac. Nsg.	1	19	3	24
	Mt. Pleasant	Medical Ass't.				14
		Med. Lab. Ass't.			5	16
Programs not yet transferred from local to area.						
	Ames	Prac. Nsg.		21	1	23
	Cherokee	Prac. Nsg.		20		20
	Des Moines	Prac. Nsg.		73	1	81
	Dubuque	Prac. Nsg.	2	17		19
	Univ. of Iowa	Prac. Nsg. (Phased out '67)		37		
		Totals	14	585	27	887
		GRAND TOTALS		599		914

conducted for employed health workers who desire upgrading or retraining to improve their knowledge and skills in the work situation.

During the 1967-68 school year there were 914 students enrolled in the 34 public programs in health occupations education conducted in Iowa. See Table 6. These programs prepared practical nurses, two-year associate degree nurses, dental assistants, medical office assistants, medical laboratory assistants, and operating room technicians. Nurse aide/orderly preparatory programs, four weeks in length, enrolled 313 students. In addition, 537 were enrolled in short-term continuing education (supplemental) courses for several types of health occupations. See Table 7. Table 8 shows the growth of Iowa's preparatory programs and enrollments in health occupations education.

Fifteen additional programs were approved to admit initial classes in the fall of 1968. New types among these are programs which will prepare environmental technicians, orthopedic technicians, occupational therapy assistants and dental laboratory technicians. Additional types being considered for future implementation will prepare orthopedic prosthetic technicians, orthopedic orthotic technicians, physical therapy assistants, social work assistants, immediate care technicians and administrators for nursing homes and other long-term health care facilities.

Programs enroll both men and women, with no discrimination as to race, color or creed. An attempt is made to meet the needs, interests and abilities of all persons who can benefit from the educational experience. All programs are approved by the Iowa Board of Public Instruction which also serves as the Iowa Board for Vocational Education.

TABLE 7
HEALTH OCCUPATIONS EDUCATION ENROLLMENTS IN SHORT-TERM PREPARATORY AND SUPPLEMENTAL PROGRAMS
1966-67 and 1967-68

Area	City	Type of Program	Enrollment 1966-67	Enrollment 1967-68
		Short-Term Preparatory		
I	Calmar	Nurse Aide/Orderly		36
IV	Sheldon	Nurse Aide/Orderly		48
V	Fort Dodge	Nurse Aide/Orderly	7	29
VI	Marshalltown	Nurse Aide/Orderly	69	61
VII	Waterloo	Nurse Aide/Orderly		33
XI	Des Moines	Nurse Aide/Orderly		50
	Newton	Nurse Aide/Orderly	11	
XII	Sioux City	Nurse Aide/Orderly		56
		Sub Total	87	313
		Supplemental		
II	Mason City	Admin. of Meds.		29
V	Fort Dodge	Nurse Reorientation		24
VI	Marshalltown	Dental Assistant		13
		Medical Terminology		27
		Nurse Aide/Orderly	71	
VII	Waterloo	Medical Assistant		19
XI	Des Moines	Medical Terminology		97
		Principles of Environmental Health		23
		Medical Assistant (Urinalysis)		8
		Coronary Care		36
		Nurse Aide/Orderly		58
		Medical Records Librarian		85
		LPN -- Care of Elderly		110
	Newton	Nurse Aide/Orderly	9	
XV	Ottumwa	Nurse Reorientation		8
		Sub Total	80	537
		GRAND TOTAL	167	850

Table 8

NUMBER OF PROGRAMS[a] AND ENROLLEES[b] IN ALL TYPES OF HEALTH OCCUPATIONS PROGRAMS 1956-68

Fiscal Year	Prac. Nsg.		Med. Ass't.		Med. Lab. Ass't.		Dent. Ass't.		Dent. Lab. Tech.		A.D. in Nsg.		O.R. Tech.		Environ. Tech.		Occup. Therapy Ass't.		Ortho-pedic Tech.		TOTAL	
	P	(E)	P	(E)	P	(E)	P	(E)	P	(E)	P	(E)	P	(E)	P	(E)	P	(E)	P	(E)	P	(E)
1956-57	2	(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	(24)
1957-58	3	(56)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	(56)
1958-59	4	(86)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	(86)
1959-60	4[c]	(75)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	(75)
1960-61	5[d]	(103)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	(103)
1961-62	5	(128)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	(128)
1962-63	8	(216)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	(216)
1963-64	11	(287)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	(287)
1964-65	11	(342)	1	(16)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	(358)
1965-66	13	(378)	1	(20)	1	(8)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	(406)
1966-67	19	(572)	1	(15)	1	(12)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21	(599)
1967-68	19	(629)	5	(80)	3	(61)	4	(59)	-	-	2	(63)	1	(22)	-	-	-	-	-	-	34	(914)
1968-69	19	(724)*	5	(102)	4	(76)*	6	(110)	1	(10)	2	(95)	3	(76)*	1	(11)	1	(11)	1	(8)	43	(1223)

[a] The figure for each year is cumulative to that point.
[b] For that year only.
[c] One new plus one in abeyance.
[d] One in abeyance reactivated.
*Estimated enrollment.

Those preparing practical nurses and associate degree nurses are also approved by the Iowa Board of Nursing.

While these programs reflect uniform standards, policies and procedures, they have sufficient flexibility to allow tailoring to each individual situation. Public educational institutions administering these programs employ the faculty and are responsible for the provision of adequate resources and facilities. Appropriate clinical facilities, utilized for the supervised clinical experience of students, are available in local hospitals or other health agencies, through contractual agreements between the educational institution and each health service agency.

Each program has an advisory committee whose members are representative of interested professional, paraprofessional, and lay groups in the community. These committees serve as liaison groups between the community and the program.

In those areas where several programs exist plans are being formulated for an over-all health occupations education advisory committee. Members of this larger group will compose partial membership of the smaller advisory committee for each individual type of health occupations education program offered. This system will provide interpretive continuity and enhance the necessary organization for planning, implementation and integration of programs. On the state level, advice is constantly being sought from, and provided by, health and related organizations, agencies, and associations.

As the Vocational Education Branch continues to cooperate with area schools to expand quality health occupations education programs, it meets its two primary objectives: (1) to prepare persons for gainful employment, and (2) to assist in meeting the health occupations needs of society.

Estimated Number of Licensed Practical Nurses in Iowa: Between July 4, 1949 and December 31, 1965 an estimated total of 4,350 Iowa licenses to practical nursing had been issued by the Iowa Board of Nursing. One thousand three hundred and sixty (1,360) were licensed on the basis of experience (waiver) and 2,990 on the basis of completion of an educational program in nursing. Of the total 4,350 licensees, 3,040 held a current license in 1965 and also gave a current address in Iowa.*

The great majority are neither consistently nor permanently out of the practical nurse work force. Rather, they have been a comparatively stable group of workers to date. For those not employed as licensed practical nurses in Iowa, it appears there is little that outside sources can do to facilitate their return to employment. Among reasons given for their unemployment, "family responsibilities" far exceeds any other and their return to work hinges on this same factor. As their children mature in age and family responsibilities lessen, they indicate they plan to return to employment as licensed practical nurses. Salaries do not seem to be a major factor in their decision to return. Very few indicated they definitely do not plan to return to practical nursing in the future.[38]

---

* Further elaboration on these figures appears on pages 73, 74.

[38] Elizabeth E. Kerr and Dale F. Petersen, Iowa Practical Nursing Sub-Study (Iowa City: University of Iowa Printing Service, 1966), pp. 40-41.

Marriage, with its accompanying potential mobility, and motherhood, with its accompanying responsibilities, will no doubt continue to influence the number of unemployed licensed practical nurses. Many, however, will eventually return to active practice in this field. This cycle will unquestionably continue among practical nurses in Iowa. Over time, however, the aging process will demand prepared nurses for necessary replacements. When this is added to the present need for more available nursing service personnel in Iowa, a need which will continue and grow in the future, it becomes even more evident that the educational preparation of nurses for Iowa must be augmented.

Continued Demand for Licensed Practical Nurses in Iowa: While practical nurse education in Iowa has moved ahead with an identifiable degree of success and effectiveness, the gap between need and preparation continues to be great. Despite the number graduating from the existing 22 programs, almost all areas of the State continue to report a shortage of available licensed practical nurses. Not only will current needs demand more of these supportive health care workers, but soon the vast majority of those licensed by waiver will have reached retirement age. In 1965 80% of the 1,360 practical nurses licensed by experience were aged 50 or above; 61% were 60 and over.[39] The urgency of the personnel supply problems implied by these figures should be apparent.

Quality practical nurse education demands adequate instructional personnel and available clinical learnings for students. It is imperative that programs be administered only in those situations where quality can be assured. Though there has been no increase in the number of preparatory programs in the State since 1967, there has been a continued increase in the number of practical nurses prepared. In an attempt to enlarge the number of available practitioners, most programs have increased class sizes and many are now admitting two classes a year. In recent years there have been far more qualified applicants than programs have been able to accept. Despite guidance and counseling which encourage each applicant to become prepared at his highest level of abilities, some who show potential for success in professional nursing by their own choice and with persistence, seek admission to programs in practical nursing. Perhaps with the expanding developments in two-year associate degree nursing programs in Iowa this situation will change and a greater number of nurses can be graduated from both levels of preparation.

---

[39] Ibid., p. 12.

If the nursing needs of the State are to be met, it is imperative that

1. nurses for all fields of nursing be prepared in larger numbers;
2. these nurses be prepared in approved educational programs in professional nursing, technical associate degree nursing, and practical nursing;
3. applicants to these programs in nursing be adequately informed of the available types of educational preparation for nursing so that each can effectively select the type of program for which his abilities and motivation are best suited;
4. nursing education programs in Iowa be expanded in size and/or increased in number to provide additional available nursing

personnel, and

5. these programs be expanded in size and increased in number only when and where quality educational programs are assured.[40]

---

[40] Ibid., p. 42.

CHAPTER IV

THE STUDY

ORIGIN

One of the obligations of the major project, An Integrated Longitudinal Study of Practical Nursing, described in the Introduction of this document, was to interview a selected sample of licensed practical nurses, their professional nurse supervisors, and nurse aides in approximately 100 employment locations throughout the States of Illinois and Iowa. To achieve this objective it was necessary to collect a copious amount of data basic to the identification of these employment locations. A rough preliminary analysis revealed that further study of these data could produce a comprehensive picture of practical nursing in Iowa and provide insight into age trends, migratory characteristics, license currency and other factors which might affect its future development. Therefore, this sub-study seemed both appropriate and of potential value.

PURPOSE

The purpose of this sub-study is two-fold: (1) to ascertain the trends in practical nursing in Iowa, utilizing data already collected on a 10% sample of all practical nurses licensed in Iowa prior to 1966, and (2) to record a history of the development of practical nursing in this State.

METHODOLOGY

Selection of Subjects: To achieve the objectives of the major project, it was decided to select a 10% systematic random sample of all practical nurses ever licensed in Iowa through December 31, 1965. Since licenses were issued sequentially by number, the sample of 435 subjects was obtained by selecting all licensees whose license number ended with the digit six (6). The same subjects are used in this sub-study and include those licensed on the basis of experience (waiver) and those licensed following completion of an educational program.

Collection of Data: The Iowa Board of Nursing, officially charged with the administration of the Iowa Nurse Practice Act, granted the research investigators permission to obtain information from their official records on those in the sample. Data collected on each subject included selected personal, social and educational characteristics as well as basis for licensure (by education or experience) and current status of license (active or inactive).

At the time of the data collection the Board's record-keeping procedures were essentially "hand-operated" rather than electronically computed. Since the reliability of the findings depended heavily on the personnel who recorded and coded the data, only research staff members performed the data collection, and regular checks were made to maintain coding uniformity. Indispensible to the collection of this data was the continued cooperation of the Iowa Board of Nursing throughout the total process, from permission to enter the official records to assistance in clarifying questions posed by the research staff.

Classification of Subjects: To facilitate description and analysis, the 435 subjects were classified according to: (1) currency of license, (2) place of current residence, and (3) basis of licensure (experience or education). From combinations of these three classifications, the following eight mutually exclusive categories were established:

CURRENT LICENSE

In-State Residence, Licensed by Education	(CIED)
Out-of-State Residence, Licensed by Education	(COED)
In-State Residence, Licensed by Experience	(CIX)
Out-of-State Residence, Licensed by Experience	(COX)

INACTIVE LICENSE

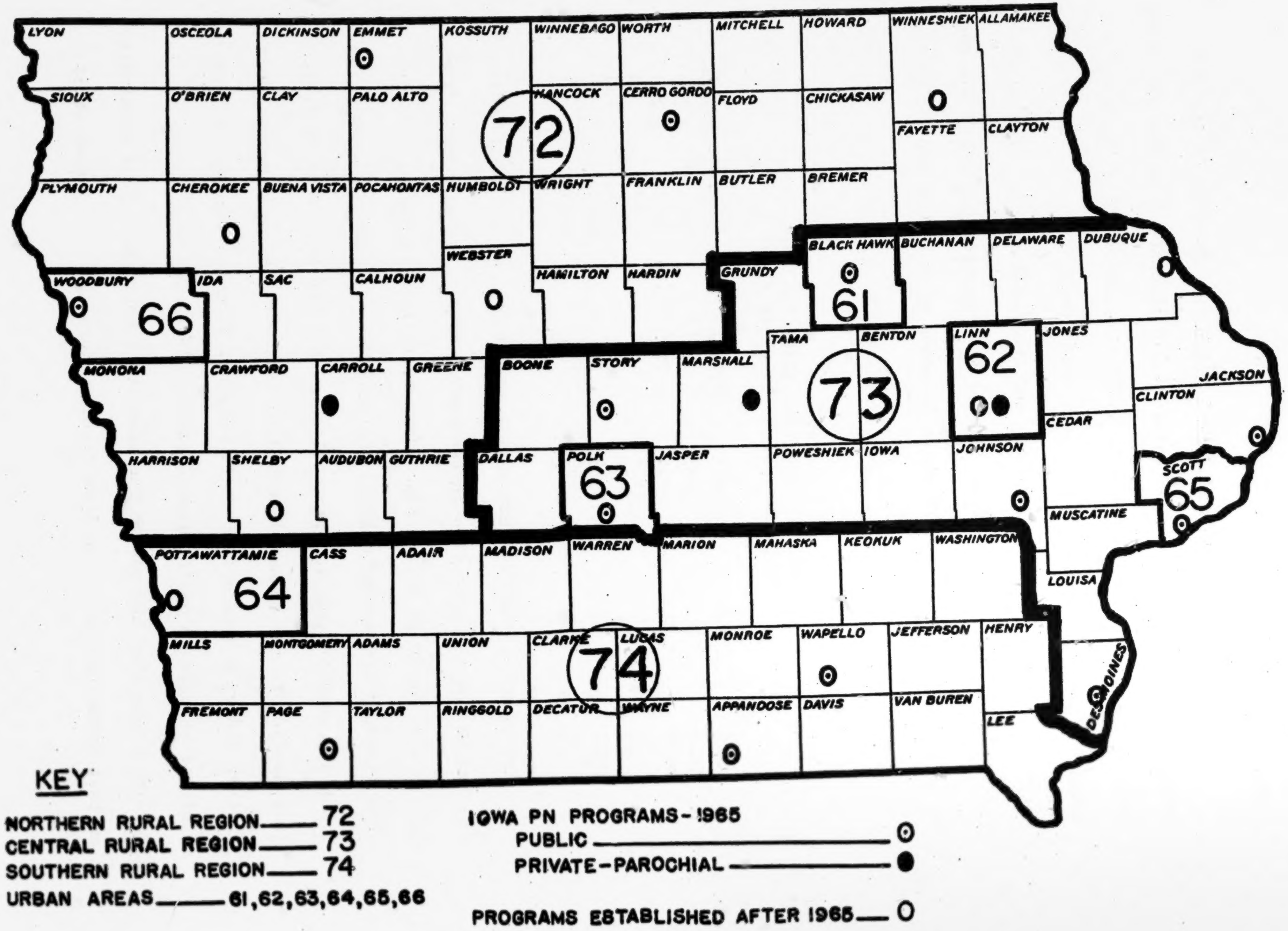
In-State Residence, Licensed by Education	(IIED)
Out-of-State Residence, Licensed by Education	(IOED)
In-State Residence, Licensed by Experience	(IIX)
Out-of-State Residence, Licensed by Experience	(IOX)

Determination of Geographic Divisions: Geographic divisions were established to study the inter-state and intra-state mobility patterns of the subjects. The divisions are mapped on the following page and for this report will be designated as follows:

			Abbreviations Used in Tables
Urban Areas:*	61	Waterloo (Blackhawk County)	WLO
	62	Cedar Rapids (Linn County)	CR
	63	Des Moines (Polk County)	DM
	64	Council Bluffs (Pottawattamie County)	CB
	65	Davenport (Scott County)	D
	66	Sioux City (Woodbury County)	SC
Rural Areas:	72	Northern Rural Area	N
	73	Central Rural Area	C
	74	Southern Rural Area	S
Regions (rural area + urban area[s])	72 + 66	Northern Region = Northern Rural Area + Northern Urban Area	
	73 + 61, 62, 63 and 65	Central Region = Central Rural Area + Central Urban Areas	
	74 + 64	Southern Region = Southern Rural Area + Southern Urban Area	
Others:		Contiguous States	CS
		Other U. S. States	US
		Foreign Countries	FC
		Out-of-State (CS and/or US)	OoS

*The six urban areas are considered by the United States Census Bureau as all or part of a Standard Metropolitan Statistical Area. While Dubuque is also a Standard Metropolitan Statistical Area, at the time of this study it had no program in practical nursing either in it or in proximity to it, as did the other six; therefore, it is not designated an urban area in this study.

GEOGRAPHIC DIVISIONS AND LOCATIONS OF IOWA PRACTICAL NURSING PROGRAMS


LYON
OSCEOLA
DICKINSON
EMMET
KOSSUTH
WINNEBAGO
WORTH
MITCHELL
HOWARD
WINNESHIEK
ALLAMAKEE
SIOUX
O'BRIEN
CLAY
PALO ALTO
HANCOCK
CERRO GORDO
FLOYD
CHICKASAW
FAYETTE
CLAYTON
72
PLYMOUTH
CHEROKEE
BUENA VISTA
POCAHONTAS
HUMBOLDT
WRIGHT
FRANKLIN
BUTLER
BREMER
WEBSTER
BLACK HAWK
BUCHANAN
DELAWARE
DUBUQUE
WOODBURY
IDA
SAC
CALHOUN
HAMILTON
HARDIN
GRUNDY
61
66
TAMA
BENTON
LINN
62
JONES
MONONA
CRAWFORD
CARROLL
GREENE
BOONE
STORY
MARSHALL
73
JACKSON
CLINTON
CEDAR
HARRISON
SHELBY
AUDUBON
GUTHRIE
DALLAS
POLK
63
JASPER
POWESHIEK
IOWA
JOHNSON
SCOTT
65
MUSCATINE
POTTAWATTAMIE
64
CASS
ADAIR
MADISON
WARREN
MARION
MAHASKA
KEOKUK
WASHINGTON
LOUISA
MILLS
MONTGOMERY
ADAMS
UNION
CLARKE
LUCAS
74
MONROE
WAPELLO
JEFFERSON
HENRY
DES MOINES
FREMONT
PAGE
TAYLOR
RINGGOLD
DECATUR
WAYNE
APPANOOSE
DAVIS
VAN BUREN
LEE
KEY
NORTHERN RURAL REGION——72
CENTRAL RURAL REGION——73
SOUTHERN RURAL REGION——74
URBAN AREAS——61,62,63,64,65,66
IOWA PN PROGRAMS-1965
PUBLIC——⊙
PRIVATE-PAROCHIAL——●
PROGRAMS ESTABLISHED AFTER 1965——O

FINDINGS

Total Number of Practical Nurses Licensed: Records of the Iowa Board of Nursing showed it had issued 4,346 licenses from the effective date of the licensure law (July 4, 1949) through December 31, 1965. Table 9 shows the number issued by calendar year. Numbers for 1949 through 1964 are to the nearest ten and the total is corrected in the 1965 figure. Since every tenth license was selected to obtain the sample, it is possible that up to nine more licenses were issued and are not included in the total.

Table 9
NUMBER OF PRACTICAL NURSE LICENSES
ISSUED IN IOWA BY CALENDAR YEAR

Year	Number	Year	Number	Year	Number
1949	160	1955	80	1961	280
1950	670	1956	180	1962	280
1951	670	1957	110	1963	330
1952	50	1958	160	1964	430
1953	30	1959	190	1965	436
1954	70	1960	220	TOTAL	4,346

The close of the two-year waiver period on July 3, 1951, is reflected in the dramatic drop in the number of licenses issued: from 670 in 1951 to 50 in 1952. Since July 4, 1951, with two exceptions, Iowa licenses are issued only on the basis of satisfactory completion of an approved program in practical nursing. The two exceptions are that applicants may become licensed in Iowa: (1) by endorsement from another state, provided that their original licenses were granted on the basis of experience during Iowa's waiver period and that in the endorsing state they had passed the same state board test pool examination as that administered by the Iowa Board of Nursing; or (2) upon satisfactory completion of a portion (prescribed by the Iowa Board of Nursing) of an approved program in professional nursing.

The decrease from 50 licenses issued in 1952 to 30 in 1953 was not due to fewer graduates. The one existing program graduated 13 in 1952 and 14 in 1953. Therefore, it is assumed that in 1953, there were fewer licenses issued by endorsement from other states or on the basis of acceptable partial completion of a professional nursing program. Conversely, of the 100 increase in the number of licenses issued between 1955 and 1956, only 22 can be attributed to the expansion of practical nursing programs in Iowa and the resulting increased number of graduates. Therefore it is assumed that the additional 78 were licensed by qualifying on the basis of endorsement or attendance in a professional nursing program. However, in September 1963 two new Iowa programs admitted their first classes and eleven existing programs had changes in enrollment. These factors accounted for 91 of the 100 increase in licenses issued in 1964 over 1963. This may be explained in part by the increased acceptance of licensed practical nurses and by the willingness of public schools to offer educational programs to meet the increasing demands for these supportive workers on the health care team.

Basis of Licensure: Table 10 shows the year of initial licensure and the basis on which licenses were issued to the 435 licensed practical nurses in the sample.

Table 10
YEAR OF INITIAL LICENSURE BY BASIS OF LICENSURE, OF THE SAMPLE

Year	Experience N	Experience %	Education N	Education %	Total N	Total %
1949	15	(11)	1	(1)	16	(4)
1950	61	(45)	6	(2)	67	(15)
1951	56	(41)	11	(4)	67	(15)
1952	3	(2)	2	(1)	5	(1)
1953	-	-	3	(1)	3	(1)
1954	1	(1)	6	(2)	7	(2)
1955	-	-	8	(3)	8	(2)
1956	-	-	18	(6)	18	(4)
1957	-	-	11	(4)	11	(3)
1958	-	-	16	(5)	16	(4)
1959	-	-	19	(6)	19	(4)
1960	-	-	22	(7)	22	(5)
1961	-	-	28	(9)	28	(6)
1962	-	-	28	(9)	28	(6)
1963	-	-	34	(11)	34	(8)
1964	-	-	42	(14)	42	(10)
1965	-	-	44	(15)	44	(10)
TOTAL	136	(100)	299	(100)	435	(100)

It should be noted that four persons were licensed on the basis of experience after the close of the two year waiver period (July 3, 1951). Explanation: three of the four licensed in 1952 had made regular application for licensure prior to the end of the waiver period but because the licensure examination was administered only periodically they had to wait until September 1951 to be tested. They failed to pass the examination on this first attempt and, eligible to "re-take" the examination, they did so successfully in February of 1952 and obtained a license. The fourth, licensed in 1954, had been licensed by waiver in Illinois after passing the state board examination test pool, and was licensed in Iowa in 1954 by endorsement from Illinois.

Within the waiver period, particularly in 1950 and 1951, more licenses were issued each year than in any single year since. By the end of 1951, 132 (88%) of the 150 licensees had utilized the "waiver" provision of the Nurse Practice Act and were licensed on the basis of experience.

Each year since 1953 there has been a gradual increase in the number licensed by education, and the year 1956 revealed a marked rise. In 1961 the total number of licenses issued on the basis of education surpassed the total number issued on the basis of experience. An increased number of preparatory programs and expansion of class sizes have contributed to this.

Number of Practical Nurse Education Programs in Iowa by School Year: There have been 23 preparatory programs in practical nurse education established. Table 11 shows the number, by school year. Note that one was in abeyance for a year and another was discontinued at the end of the 1966-67 school year. The location and type of administration of each program was shown in Table 5 of Chapter III, page 48.

Table 11

PRACTICAL NURSE EDUCATION PROGRAMS
IN IOWA BY SCHOOL YEAR

School Year	No. of New Programs	Cumulative No. of Programs	Remarks
1948-49	1	1	
1949-50		1	
1950-51		1	
1951-52		1	
1952-53		1	
1953-54	2	3	
1954-55		3	
1955-56	1	4	
1956-57		4	
1957-58	1	5	
1958-59	2	7	
1959-60		7	
1960-61	1	7	Clarinda in abeyance.
1961-62		8	Clarinda reopened.
1962-63	3	11	
1963-64	2	13	
1964-65	1	14	
1965-66	2	16	
1966-67	6	22	
1967-68	1	22	University of Iowa demonstration-experimental program discontinued.
	23		

Currency of Licensure and Type of Preparation: Each of the 435 subjects in the sample was classified in one of eight groups designated by a letter code according to licensure status, place of residence, and preparatory basis for licensure. See Table 12.

Table 12
STATUS OF ALL PRACTICAL NURSES EVER LICENSED
IN IOWA AS OF DEC. 31, 1965

Status	Letter Code	Number	Percent
CURRENT LICENSE			
In-State Residence, Licensed by Education	(CIED)	222	(51.0)
Out-of-State Residence, Licensed by Education	(COED)	34	(7.8)
In-State Residence, Licensed by Experience	(CIX)	82	(18.9)
Out-of-State Residence, Licensed by Experience	(COX)	12	(2.8)
SUB-TOTAL		350	(80.5)
INACTIVE LICENSE			
In-State Residence, Licensed by Education	(IIED)	26	(6.0)
Out-of-State Residence, Licensed by Education	(IOED)	17	(3.9)
In-State Residence, Licensed by Experience	(IIX)	34	(7.8)
Out-of-State Residence, Licensed by Experience	(IOX)	8	(1.8)
SUB-TOTAL		85	(19.5)
GRAND TOTAL		435	(100.0)

The largest sub-group, 222 (51%) had current licenses, resided in-state and had been prepared by education (CIED). In 1965, 256 (85.7%) of the 299 licensed in Iowa by education 94 (69.1%) of the 136 licensed in Iowa by experience had current licenses to practice practical nursing in Iowa. This difference is statistically significant (X^2 [corrected for continuity] = 15.16, df = 1, $p < .001$). The primary reason for this difference is related to age which is further elaborated upon later in this chapter.

The characteristics of practical nurses licensed in Iowa have changed markedly since the enactment of the educational requirement in the Nurse Practice Act; however, the casualties to which age is susceptible have also contributed to this change. Those licensed on the basis of experience could apply and qualify for licensure only between July 4, 1949 and July 3, 1951. The median age of this group was 50 years. Conversely, the median age at licensure for the group prepared by education during the 16-1/2 year period under study (July 4, 1949 to December 31, 1965) was 22 years. Though practical nurses tend to keep their licenses current, the probability of disablement and other factors which could cause a lower rate of renewal may be expected to be higher in the experience group than in the education group.

Licensure renewal is initiated by the individual and when a license is not renewed, it is categorized as "inactive". A license may become inactive because of death and, due to the voluntary renewal procedure, this information may not be known by the Board of Nursing. It was known by the Board, however, that six of the 85 inactive licensed practical nurses were deceased at the time of data collection, but this can be considered under-representative of the actual number.

Sex of Subjects: Of the 434 subjects on whom this information is known, 7 (1.6%) are men and 427 (98.4%) are women. The percentage of men in the practical nurse work force at this time on the national level is estimated to be between 1 and 2%. Of the 7 men, 6 were licensed by education and one by experience. See Table 13.

Table 13
SEX BY BASIS OF LICENSURE

Sex	Experience N	Experience %	Education N	Education %
Women	135	(99)	292	(98)
Men	1	(1)	6	(2)
TOTAL	136	(100)	298*	(100)

*Unknown on one subject.

Race of Subjects: Information on race was not recorded in the official records. Information in this report pertaining to race, "white" or "non-white", was based on judgments made from photographs attached to each application. Because any questionable case was classified as "white", the numbers reported in the "non-white" category are probably conservative. Classification was based on the U. S. Census definitions where "white" is defined as Caucasian, while Negro, Oriental, Indian and other groups are classed as "non-white". See Table 14.

Table 14
RACE BY BASIS OF LICENSURE

	Experience N	Experience %	Education N	Education %
White	136	(100)	286	(96)
Non-White	-	-	12	(4)
	136	(100)	298*	(100)

*Unknown for one.

Of the 434 whose race is known, 12 (2.8%) are non-white. The percentage of non-white practical nurses licensed in Iowa in 1965 was higher than the percentage of non-white people in the State. The

1960 census showed that, of the 1,696,048 people 20 years of age or over, 18,635 (1.1%) were non-white.[41]

In 1965 the 12 non-white subjects, all women, ranged in age from 19-44; ten were under 34 years of age. Four were born in Iowa, four in a contiguous state, and four in other U. S. states. All 12 completed high school (one had pursued additional education) and graduated from an Iowa practical nursing program. Three were licensed between 1954-59, and nine between 1961-65; all hold a current license to practice practical nursing in Iowa. Ten of the 12 had a current residence in an Iowa urban area, one in a contiguous state and one in another U. S. state.

Amount of General Education Completed: For purposes of this study, general education is defined as the highest grade achieved up to, and including, twelfth grade (high school diploma or proof of equivalencey).

There is a distinct difference in the amount of general education completed by the experience group and by the education group. This is primarily attributable to requirements in the Iowa Nurse Practice Act and its amendments (see pages 37-38), and to admission requirements established by individual programs in practical nursing. See Table 15, on the following page.

---

[41] U. S. Bureau of the Census, U. S. Census of Population: 1960, General Social and Economic Characteristics, Iowa, Final Report PC (1) - 17C (Washington, D. C.: U. S. Government Printing Office 1962), p. 17/169.

Table 15
GENERAL EDUCATION BY BASIS OF LICENSURE

Type of General Education	Experience N	Experience %	Education N	Education %	Total N	Total %
Completed 8 years	45	(33)	-	-	45	(10)
Completed some high school	43	(31)	13	(4)	56	(13)
High school equivalence	1	(1)	10	(3)	11	(3)
Completed high school	27	(20)	240	(81)	267	(61)
Beyond high school	20	(15)	34	(11)	54	(12)
Unknown	-	-	2	(1)	2	(1)
TOTAL	136	(100)	299	(100)	435	(100)

Of the 136 in the experience group, 45 (33%) completed eight years of schooling, 43 (31%) completed some high school and 47 (35%) completed high school or beyond. Of the education group, thirteen (4%) completed some high school, 95% completed high school (or its equivalency) or beyond; for 1%, this information is unknown. Of the 77 subjects licensed after the time when high school completion (or its equivalency) was required, 10 (13%) met the requirement by equivalency. Those who pursued general education beyond high school were 15% of the experience and 11% of the education group.

State Board Licensing Examination Scores: Table 16 shows type of nurse training program attended, whether in-state or out-of-state, grouped by state board examination scores. There are two types of scores. Between July 1949 and September 1955 examination results were reported in percentage scores based on national norms. The Iowa minimum passing level was set at 70%. On September 13, 1955, the method of reporting state board examination results was changed from the percentage system to a standard score system. A score of 350 was established in Iowa as the minimum passing level and remains so to date.

Table 16
STATE BOARD SCORE BY TYPE OF NURSING PREPARATION

	Education Group				Experience Group	
Score	Iowa Prac. Nsg.	Iowa Prof. Nsg.	OoS Prac. Nsg.	OoS Prof. Nsg.		TOTAL
Percentile Score						
70-79	3	3	-	3	43	52
80-89	4	6	-	3	71	84
90-96	3	5	1	1	22	32
Sub-total	10	14	1	7	136	168
Standard Score						
350-399	3	1	-	-	-	4
400-449	25	-	2	1	-	28
450-499	29	5	9	3	-	46
500-549	37	9	10	2	-	58
550-599	42	9	9	4	-	64
600-649	30	5	4	7	-	46
650-699	11	-	3	2	-	16
700-749	5	-	-	-	-	5
Sub-total	182		37	19	-	267
GRAND TOTAL	192	43	38	26	136	435

For all subjects examined before September, 1955, the mean percentile score for those who attended a nursing education program was 85 and for those who qualified by experience was 83. Mean standard scores for all subjects licensed between September, 1955 and December 31, 1965, grouped into four categories, were as follows:

	Mean Score
a) 182 graduates of Iowa practical nursing programs	543
b) 37 graduates of out-of-state practical nursing programs	543
c) 29 who attended Iowa professional nursing programs	544
d) 19 who attended out-of-state professional nursing programs	575

Age at Initial Licensure: The trend is progressively toward younger licensed practical nurses. Today the typical student or the new licensee is no longer the middle-aged or older person, the generally held image of the licensed practical nurse. This is shown by the vast difference in the median age at licensure between those licensed by experience between 1949 and 1951 and those licensed by education since 1949. See Tables 17 and 18.

One hundred fifty of the sample obtained their licenses between 1949 and 1951. The median age for these three years were 53, 49 and 45 respectively. This group included 132 licensed by experience and 18 licensed by education. If these 18 were eliminated from the calculations, the median age each year (for the experience group) would be even higher. For these three years the median ages of the education groups were, respectively, 22 (for a group composed of one), 28 (for a group of six), and 29 (for a group of 11 subjects).

After 1951, in addition to the marked drop in number of licenses issued, there is also a precipitous decline in the median age, stabilizing at 21-23 years of age with the exception of the three years, 1955, 1959 and 1963. Of the 285 in the sample licensed from 1952-1965, four were prepared, as explained earlier, on the basis of experience. Three of these were licensed in 1952 at the ages of 36, 51 and 62. The median age for those licensed in 1952 would also have been in the twenties if one considered only those prepared on the basis of education. The fourth, licensed by experience in 1954 at the age of 58, does not significantly affect the median age for the group licensed that year.

To facilitate chi square calculations of age data, four categories were delineated. The rationale for each is as follows:

(a) 18-24 - The period when most women receive their training,

Table 17

MEDIAN AGE AT LICENSURE BY YEAR SUBJECTS RECEIVED THEIR INITIAL IOWA LICENSE

Year	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	Total
19 and younger	-	-	1	-	-	2	2	1	1	3	1	3	6	3	2	12	15	51
20-24	2	3	9	1	1	2	2	9	5	7	8	10	12	16	11	13	16	127
25-29	2	2	3	1	-	1	-	2	1	1	-	2	1	-	3	3	3	25
30-34	1	4	9	-	1	-	-	-	-	1	1	2	4	2	3	3	3	34
35-39	-	6	3	1	1	1	1	-	1	-	1	2	2	1	1	-	2	23
40-44	1	10	6	-	-	-	1	1	1	-	4	1	2	2	6	7	2	44
45-49	-	11	8	-	-	-	1	2	-	2	3	1	-	1	4	2	2	37
50-54	5	12	10	1	-	-	1	2	2	1	1	1	1	2	2	1	2	44
55-59	2	12	8	-	-	1	-	1	-	1	-	-	-	1	1	2	-	29
60-64	1	6	5	1	-	-	-	-	-	-	-	-	-	-	-	-	-	13
65-69	2	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
70-74	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
75-79	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
80 and older	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
NUMBER	16	67	67	5	3	7	8	18	11	16	19	22	28	28	33	43	44	435
MEDIAN AGE	53	49	45	36	31	23	28.5	22	23	21.5	30	22.5	21	21	30	22	21	31

NOTE: To confine this table to a single page, ages are shown in grouped categories as indicated at the left. The median age reported for each year however, is calculated from un-grouped data on all subjects.

work a few years and get married.

(b) 25-44 - The period when married women drop out of the labor force to have and raise a family.

(c) 45-64 - The period after which married women have completed their families and their children are in school, giving them an opportunity to return to the labor force.

(d) 65 and over - The period of retirement.

At the time of licensure, there was a pronounced difference between the education and experience groups. Table 18 shows that 170 (57%) of the 299 in the education group and only eight (6%) of the 136 in the experience group were 24 and under at licensure. The number in each group in the 25-44 age range is approximately equal. The education group had only 14% over 45 and no one over 59. The experience group, on the other hand, had 64% over 45 and 15% were 60 and older.

Table 18
AGE AT LICENSURE BY BASIS OF LICENSURE

	Experience		Education		TOTAL	
Age	N	%	N	%	N	%
19 and younger	1	(1)	50	(17)	51	(12)
20-24	7	(5)	120	(40)	127	(29)
25-29	6	(4)	19	(6)	25	(6)
30-34	12	(9)	22	(8)	34	(8)
35-39	9	(7)	14	(5)	23	(5)
40-44	13	(10)	31	(10)	44	(10)
45-49	17	(12)	20	(7)	37	(8)
50-54	28	(21)	16	(5)	44	(10)
55-59	22	(16)	7	(2)	29	(7)
60-64	13	(10)	-	-	13	(3)
65-69	5	(3)	-	-	5	(1)
70 and older	3	(2)	-	-	3	(1)
TOTAL	136	(100)	299	(100)	435	(100)

$X^2 = 142.26$ df = 3 $p < .001$
Age Groups: 24 and younger, 25-44, 45-64, 65 and older

Age (1965): Differences in age at licensure between the experience and education groups become even more apparent when their ages in 1965 are compared. In 1965, 90% of the experience group were 45 years and over while only 22% of the education group were in this age range. See Table 19. When basis of licensure is compared for the retirement age range, 46% of the experience group and only 1% of the education group are 65 and over. Of the education group, 34% are 24-and-under but no one of the experience group is in that category. Whereas Table 18 showed an approximately equal percentage of the two groups (experience 30%, education 29%) to be in the 25-44 age range at the time of initial licensure, Table 19 shows that in 1965 there was a significant difference; 44% of the education group and 10% of the experience group were in this age range. The increase in the size of the education group in the 25-44 age range can be attributed to the number who have recently reached the 25-29 age category.

Table 19
AGE IN 1965 BY BASIS OF LICENSURE

	Experience		Education		TOTAL	
Age	N	%	N	%	N	%
19 and younger	-	-	12	(4)	12	(3)
20-24	-	-	89	(30)	89	(20)
25-29	-	-	55	(19)	55	(13)
30-34	3	(2)	30	(10)	33	(7)
35-39	6	(4)	25	(9)	31	(7)
40-44	6	(4)	19	(6)	25	(6)
45-49	13	(10)	22	(7)	35	(8)
50-54	9	(7)	22	(7)	31	(7)
55-59	16	(12)	19	(6)	35	(8)
60-64	21	(15)	4	(1)	25	(6)
65-69	20	(15)	1	(0.5)	21	(5)
70 and under	42	(31)	1	(0.5)	43	(10)
TOTAL	136	(100)	299	(100)	435	(100)

$X^2 = 217.46$ df = 3 P .001
Age Groups: 24 and younger, 25-44, 45-64, 65 and older

Table 20
AGE IN 1965 BY STATUS GROUP

Age	CIED		COED		IIED		IOED		CIX		COX		IIX		IOX		TOTAL	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
19 and younger	12	(5)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	(3)
20-24	82	(37)	10	(29)	4	(15)	3	(18)	-	-	-	-	-	-	-	-	99	(23)
25-29	28	(13)	4	(12)	9	(35)	4	(23)	-	-	-	-	-	-	-	-	45	(10)
30-34	14	(6)	5	(15)	7	(27)	4	(23)	1	(1)	-	-	1	(3)	1	(12.5)	33	(7)
35-39	19	(8)	-	-	4	(15)	2	(12)	3	(4)	1	(8.2)	2	(6)	-	-	31	(7)
40-44	15	(7)	4	(12)	-	-	-	-	4	(5)	-	-	2	(6)	-	-	25	(6)
45-49	18	(8)	3	(8)	1	(4)	-	-	8	(9)	4	(34)	-	-	1	(12.5)	35	(8)
50-54	18	(8)	4	(12)	-	-	-	-	4	(5)	1	(8.2)	4	(12)	-	-	31	(7)
55-59	11	(5)	4	(12)	1	(4)	3	(18)	13	(16)	1	(8.2)	-	-	2	(25)	35	(8)
60-64	4	(2)	-	-	-	-	-	-	13	(16)	3	(25)	3	(8)	2	(25)	25	(6)
65-69	-	-	-	-	-	-	1	(6)	13	(16)	1	(8.2)	4	(12)	2	(25)	21	(5)
70 and older	1	(1)	-	-	-	-	-	-	23	(28)	1	(8.2)	18	(53)	-	-	43	(10)
TOTALS	222	(100)	34	(100)	26	(100)	17	(100)	82	(100)	12	(100)	34	(100)	8	(100)	435	(100)

Table 20 shows present age by status group. Coding for status groups was shown on page 65.

Currency of Licensure: Statistical tests were run on the experience and education groups to determine if age affected currency of license. Chi square computations yielded a non-significant relationship for the experience group ($X^2 = 5.48$, df = 2, .05 $p < .10$) and a significant relationship for the education group (see Table 21).

Table 21
AGE IN 1965 BY CURRENCY OF LICENSE
(EDUCATION GROUP)

Age	Current		Inactive		TOTAL	
	N	%	N	%	N	%
24 and younger	104	(94)	7	(6)	111	(100)
25-44	89	(75)	30	(25)	119	(100)
45-59	58	(92)	5	(8)	63	(100)
60 and older	5	(83)	1	(17)	6	(100)
TOTAL	256		43		299	

$X^2 = 19.37$ df = 3 $p < .001$

The statistical significance of Table 21 is primarily due to the large difference between the observed and expected frequencies in the 25-44 age range of the group with inactive licenses. When considering the rationale of the age categories (see pages 79 and 81) this finding is to be expected. While completed licensure renewal forms from which the data were collected did not include marital status information, it is likely that marriage and family responsibilities are primary causal factors for inactivity in the 25-44 age range.[42] Supporting this is the fact that 26 (87%) of the 30 subjects with an inactive license were 30 years of age or less at the time they became inactive. The age of the oldest subject at the time of becoming inactive was 37.

---

[42] Kerr and Petersen, *op. cit.*, p. 40

When examining other factors which may influence currency of license for the education group in the 25-44 age range, no significant percentage difference was found between those active and those inactive. For example:

(1) current residence in-state -- the last address of 13 (65%) of the 20 inactive subjects was in a rural area (see page 66 for definition), and 160 (65%) of the 248 with a current license also resided in a rural area;

(2) state board examination -- eighteen (82%) of the 22 inactive subjects had scores of 500 or higher, and 189 (71%) of the 267 with a current license had scores of 500 or higher; and

(3) education -- 29 (97%) of the 30 inactive subjects and 282 (95%) of the 297 with a current license, had completed high school or its equivalent.

Table 21 also shows a lower observed frequency of inactivity in the 24-and-under age group than would statistically be expected. This may be explained in part by the fact that 25 (83%) of the 30 inactive subjects in the 25-44 age group kept their licenses current for at least three years while many of the subjects in the 24-and-under age group would not yet have had the opportunity to hold a license for this length of time.

To determine if type and/or location of nurse education program attended had any affect on licensure status, a statistical test (chi square corrected for continuity) was run on five of the possible combinations from Table 22.

Table 22
NURSING SCHOOL ATTENDED BY CURRENCY OF LICENSE

Type of School	Geog. Division	Current N	Current %	Inactive N	Inactive %	Total N	Total %
Practical Nursing	Northern Rural Area	21	(8)	1	(2)	22	(7)
	Central Rural Area	48	(19)	13	(30)	61	(21)
	Southern Rural Area	20	(8)	1	(2)	21	(7)
	Waterloo (Urban)	17	(6)	1	(2)	18	(6)
	Cedar Rapids (Urban)	27	(11)	3	(7)	30	(10)
	Davenport (Urban)	12	(5)	-	-	12	(4)
	Sioux City (Urban)	4	(2)	-	-	4	(1)
	Des Moines (Urban)	23	(9)	-	-	23	(8)
	Out-of-State	29	(11)	10	(24)	39	(13)
Professional Nursing	In Iowa	31	(12)	12	(28)	43	(14)
	Out-of-State	34	(9)	2	(5)	26	(9)
	TOTAL	256	(100)	43	(100)	299	(100)

(1) Iowa practical nursing programs in urban areas compared with those in rural areas ($X^2 = 4.07$, df = 1, $.02 < p < .05$);

(2) Iowa practical nursing programs compared with out-of-state practical nursing programs ($X^2 = 5.88$, df = 1, $.01 < p < .02$);

(3) Iowa practical nursing programs compared with Iowa professional nursing programs ($X^2 = 8.35$, df = 1, $p < .01$);

(4) Iowa professional nursing programs compared with out-of-state professional nursing programs, ($X^2 = 2.94$, df = 1, $.05 < p < .10$); and,

(5) out-of-state practical nursing programs compared with out-of-state professional nursing programs ($X^2 = 1.63$, df = 1, $.20 < p < .30$).

There is a higher rate of license currency among those prepared in urban areas than among those prepared in rural areas. This can be attributed to the proportionately high number of inactive subjects in the Central Rural Area. There is also a higher rate of license currency among those prepared in Iowa practical nursing programs than among either those prepared in out-of-state practical nursing programs or in Iowa professional nursing programs. There is no significant statistical difference between those prepared in Iowa professional nursing programs and those prepared in out-of-state professional nursing programs, nor between those prepared in out-of-state practical nursing programs and those prepared in out-of-state professional programs.

Age and Residence In-State or Out-of-State: "Current residence" for this study means the most recent address provided the Iowa Board of Nursing by the individual licensed practical nurse. For those with active licenses in 1965, the address was provided at renewal, reinstatement, initial licensure or by official change-of-address notice. For those with inactive licenses, the last address recorded by the Iowa Board of Nursing was considered the current residence.

Age seemed to be a significant factor when comparing the in-state residents and the out-of-state residents among the experience group. The chi square for age compared to current residence on the education group shows no significant relationship ($X^2 = 3.85$, df = 3, $.20 < p < .30$), while the chi square on the same factors for the experience group showed a significent relationship. See Table 23.

The 65-and-over age group has a lower observed frequency of residence out-of-state than would be statistically expected. This finding can be explained by the fact that mobility is inversely related to age. However, the observed frequency of out-of-state residence in the 45-64 age group is slightly higher than would be statistically expected.

Table 23
AGE IN 1965 BY CURRENT RESIDENCE (EXPERIENCE GROUP)

Age (1965)	In-State		Out-of		TOTAL	
	N	%	N	%	N	%
30-44	13	(11.2)	2	(10.0)	15	(11.0)
45-64	45	(38.8)	14	(70.0)	59	(43.4)
65 and older	58	(50.0)	4	(20.0)	62	(45.6)
TOTAL	116	(100)	20	(100)	136	(100)

$X^2 = 7.158$ df = 2 $.02 < p < .05$

When using 45-59, 60 or older:

$X^2 = 3.43$ df = 2 $.10 < p < .20$

Place of Birth: There was found to be a fairly close proportionate relationship when place of birth of subjects in the study and the general population of Iowa were compared. See Table 24.

Table 24
PLACE OF BIRTH OF GENERAL POPULATION
OF IOWA (1960 CENSUS) AND OF THE SAMPLE

Place of Birth	General Iowa Pop. (1960 Census)	Sample
Iowa	79%	73%
Other States	17%	26%
Foreign Countries	2%	1%
TOTAL	98%[43]	100%

The percentage distributions of the experience and education groups by place of birth show only minute differences. See Table 25. The largest variation, three percent (3%), is for those born in Iowa urban areas.

---

[43] The census data do not total 100% due to rounding error and to the fact that the state of birth is unknown for 1.6% of the population. U. S. Census of Population, Iowa 1960, op. cit., p. 17/171.

Table 25
PLACE OF BIRTH BY BASIS OF LICENSURE

Place of Birth	Experience N	Experience %	Education N	Education %	TOTAL N	TOTAL %
Iowa -						
Rural Areas	78	(57)	174	(58)	252	(58)
Urban Areas	18	(13)	47	(16)	65	(15)
Contiguous States	25	(19)	51	(17)	76	(17)
Other U. S. States	14	(10)	23	(8)	37	(9)
Foreign Countries	1	(1)	4	(1)	5	(1)
TOTAL	136	(100)	299	(100)	435	(100)

Location Where General Education Achieved: This information is shown in Table 26.

Table 26
LOCATION OF GENERAL EDUCATION BY BASIS OF LICENSURE

Location of General Education	Experience N	Experience %	Net gain** or Loss	Education N	Education %	Net gain** or Loss
Iowa -						
Rural Areas	77	(56)	-1	165	(55)	- 9
Urban Areas	22	(16)	+4	63	(21)	+16
Contiguous States	20	(15)	-5	54	(18)	+ 3
Other U. S. States	16	(12)	+2	14	(4)	- 9
Foreign Countries	1	(1)	0	2	(1)	- 2
TOTAL	136	(100)		298*	(100)	

*Unknown for one subject.
**Net gain or loss = the difference between the number born in a specific Division (Table 25) and the number who received their general education in the same Division (Table 26).

Most divisions show a fairly high degree of stability (defined as net gain or loss) when Tables 25 and 26 are used to compare the number born in a specific geographic division with the number who received their general education in that same division. This is true both for the education group and for the experience group. The total absolute values (sum of the gain or loss figures disregarding the plus or minus signs) of this index of stability are 39 for the education group and 12 for the experience group. This suggests that between the two points in time, the totals within the divisions changed less with the experience group than with the education group. The largest gain was by the Urban Areas where the education group had a 34% increase. This gain reflects the ever-increasing percentage of the general population who are living in urban areas. Also within the education group, the Rural Areas lost 5% and the "Other U. S. States" lost 39%. Within the experience group, the Urban Areas again had the largest gain, 22%. The largest loss of those licensed by experience was in the "Contiguous States" with a 25% decrease; whereas, in the education group that division gained 6%. Tables 25 and 26 also show that of the 118 subjects who were born out-of-state and eventually received an Iowa license, at least 10 (8%) moved to Iowa between birth and completion of their general education. In terms of both intrastate migration and immigration to Iowa, the Urban Areas again had the largest net gains.

Since subjects in the experienced group did not attend a nursing education program, for the remainder of this section of the report the mobility statistics will be based on the education group only. This allows continuity across the four perspectives which were used to identify mobility patterns.

Location and Type of Nursing Program Attended: Of the 299 subjects licensed on the basis of having attended a nursing education program, 191 (64%) attended Iowa practical nursing programs; 43 (14%) attended Iowa professional nursing programs; 39 (13%) out-of-state practical nursing programs; and 26 (9%) out-of-state professional nursing programs.

Table 27
NURSING EDUCATION PROGRAM ATTENDED
BY GEOGRAPHIC DIVISION
(EDUCATION GROUP ONLY)

Nursing Program Attended	Location	N	%
Practical Nursing	Northern Rural Area	22	(7)
	Central Rural Area	61	(20)
	Southern Rural Area	21	(7)
	Urban Areas	87	(30)
	Out-of-State	39	(13)
Professional Nursing	Iowa	43	(14)
	Out-of-State	26	(9)
	TOTAL	299	(100)

Sixty-nine (23%) of the 299 received their nursing education in a professional nursing program. Exact comparisons with Table 26 cannot be made due to lack of specific geographic information on the 43 who attended Iowa programs in professional nursing. When those who attended high school outside the State are compared with those who attended either a practical nursing or professional nursing program outside the State, Iowa had a net gain of five subjects between high school and attendance at an Iowa nursing program.

Tables 26 and 27 show that the Urban Areas gained 24 subjects (a 34% increase) between the two points in time, high school and attendance in a nursing program. It should be noted that the 43 subjects who attended an Iowa program in professional nursing were not included in this computation. It is probable that a significant proportion of these 43 attended a professional nursing program in an urban area, since 16 of the 25 professional nursing programs which existed in 1963-64 were located in urban areas. This would further increase the number who attended a nursing program, but not high school, in Urban Areas.

Table 28 shows the number of practical nursing programs in each Area in Iowa; the number of subjects in the education group who were graduated from each program prior to December 31, 1965; a comparison of the State population in each Area with the total number of subjects in that Area who were licensed on the basis of education; and the location, by area, of all programs established during and after 1965. Of the 14 programs in existence prior to 1965, eight were located in the Central Region (Central Urban Areas plus Central Rural Area)*. This Region of the State contains 47% of the population and graduated 57% of the subjects.

While the Northern Rural Area contains 30% of the State's population, its two programs accounted for only 12% of the total number of graduates. One Urban Area, Cedar Rapids, with only 5% of the State's population and one program, accounted for 16% of all graduates. Council Bluffs, with 3% of the State's population, did not establish a program

---

*See page 66 for key to geographic divisions.

Table 28

LOCATION OF PRACTICAL NURSING PROGRAMS IN IOWA PRIOR TO 1965 BY GRADUATES LICENSED 1949-1965, PERCENTAGE OF STATE POPULATION IN EACH GEOGRAPHIC DIVISION, AND NEW PROGRAMS DURING AND SINCE 1965.

Location of Program	Graduates Licensed		% of State Population 1960 Census	Programs Established During and After 1965
	No.	%		
Northern Rural Area				
Carroll (pvt.)	18			Calmar
Mason City	4			Estherville
				Cherokee
				Harlan
Sub-total	22	(12)	(30)	Fort Dodge
Central Rural Area				
Ames	4			Dubuque
Clinton	4			Burlington
Iowa City	23			(Iowa City
Marshalltown (pvt.)	30			phased out
Sub-total	61	(32)	(24)	Aug. 1967)
Southern Rural Area				
Centerville	2			
Clarinda	10			
Ottumwa	9			
Sub-total	21	(11)	(16)	
Urban Areas				
Davenport	12	(6)	(4)	Cedar Rapids (pub.)
Cedar Rapids (pvt.)	30	(16)	(5)	Council Bluffs
Council Bluffs	-	-	(3)	
Sioux City	4	(2)	(4)	
Waterloo	18	(9)	(4)	
Des Moines	23	(12)	(10)	
Sub-total	87	(45)	(30)	
TOTAL	191	(100)	(100)	9

until 1966 and therefore had not graduated students at the time of the data collection. From 1965 to the present, nine new publicly administered programs have been established and one (the University of Iowa experimental-demonstration program) has been phased out. Five of the new programs are in the Northern Rural Area, one in the Central Rural Area where the one was phased out, and one in each of the three Urban Areas of Cedar Rapids, Council Bluffs and Dubuque. Therefore, the distribution of the presently existing 22 practical nursing programs in Iowa is fairly close to the 1960 distribution of Iowa's total population: 28% of the programs in the Northern Rural Area (30% of population), 18% in the Central Rural Area (24% of the population), 14% in the Southern Rural Area (16% of population), and 40% in the Urban Areas (30% of population). Contrary to this study's treatment of Dubuque, the Census Bureau considers Dubuque an Urban Area. In that case three percentage points can be subtracted from the Central Rural Area and added to the Urban Areas category making the 7% in the Urban Areas category the largest difference between percentages of programs and population.

It was shown in Table 28 that the Northern Rural Area had the largest percentage of the State's population and the smallest number of programs in practical nursing. The effects of this situation are shown in Table 29, which gives the cross-tabulation between location of high school attended and location of nursing education program attended.

Table 29

LOCATION OF GENERAL EDUCATION BY LOCATION OF NURSING PROGRAM ATTENDED (EDUCATION GROUP)

Location of General Education	Location of Nursing Program Attended												TOTAL
	Rural Areas			Urban Areas						Other			
				Central				No. SC	So. CB	OoS. Prac.	Ia. Prof.	OoS. Prof.	
	N	C	S	WLO	CR	DM	D						
Rural Areas:													
Northern	15	15	1	4	10	1	-	-	-	11	13	6	76
Central	-	20	-	3	7	2	-	-	-	2	12	1	47
Southern	3	4	16	-	1	7	-	1	-	1	6	3	42
Urban Areas:													
Waterloo	-	4	-	7	2	-	1	-	-	-	4	-	18
Cedar Rapids	1	3	-	1	8	-	-	-	-	-	-	-	13
Davenport	-	2	-	-	-	-	5	-	-	-	-	-	7
Sioux City	-	2	-	-	-	-	-	2	-	-	2	-	6
Council Bluffs	-	-	1	-	-	-	-	1	-	1	-	-	3
Des Moines	-	2	-	-	-	10	1	-	-	-	3	-	16
Other:													
Contiguous States	2	8	2	2	2	-	4	-	-	16	3	15	54
U. S. States	1	1	-	1	-	3	1	-	-	6	-	1	14
Foreign Countries	-	-	1	-	-	-	-	-	-	1	-	-	2
TOTAL	22	61	21	18	30	23	12	4	-	38*	43	26	298

*Unknown for one.

Thirteen of the 76 subjects who attended high school in the Northern Rural Area attended Iowa professional nursing programs for which the specific locations are unknown because of incomplete data. Of the remaining 63, 15 (24%) graduated from a practical nursing program in the Northern Region (Northern Rural Areas plus Northern Urban Areas); 30 (48%) from a program in the adjacent (Central) Region; and 17 (27%) received their nursing education out-of-state, 11 in practical nursing programs and six in professional nursing programs.

Of the 47 who attended high school in the Central Rural Area, 12 attended an Iowa professional nursing program. Thirty-two (91%) of the remaining 35 attended a practical nursing program in the Central Region; and, three (9%) received their nursing preparation out-of-state, two in a practical nursing program and one in a professional nursing program. The subjects in the Southern Rural Area show a pattern similar to that of the Central Rural Area. The 42 attending high school in the Southern Rural Area included six who attended Iowa programs in professional nursing. Of the remaining 36, 16 (44%) graduated from practical nursing programs in that Region; nine (33%) completed programs in the adjacent (Central) Region; four (11%) completed programs in practical nursing in the Northern Region; and four (11%) received their preparation out-of-state, one in a practical nursing program and three in professional nursing programs.

The three urban areas with 13 or more subjects are all in the Central Region. Fifty per cent (50%) or more of the subjects who attended high school in one of these urban areas also attended a practical nursing program in that area. Of all those attending high school in one of these three urban areas, only one left the Central Region for practical nurse preparation.

The Northern Rural Area had the largest group who went out-of-state for their nursing preparation. When the Urban and Rural Areas are combined, at least 70% of the subjects attended a practical nursing program in the Region where they attended high school or in the adjacent Region. Of the 70 who attended high school out-of-state and eventually received an Iowa license, 39 (56%) had also received their nursing preparation out-of-state. Twenty-five (11%) of the 228 who attended high school in Iowa, received their practical nursing education out-of-state. The Northern Rural Area accounted for 17 of these 25. The Central Region, due to its strategic location and the fact that it had the most programs (eight prior to 1965 compared to a total of six for the rest of the State), attracted the most students. Of the 191 subjects who attended an Iowa program in practical nursing, 144 (75%) attended a program in the Central Region.

Residence at Initial Licensure: As noted earlier in this report, the median age of the education group at initial licensure was 22 years. Since a large number were licensed under age 20, a significant number of subjects at licensure probably gave their parents' address as their current residence where they could be contacted.[44] Information on address at time of initial licensure does not discriminate between those with a permanent address and those temporarily using their parents' address. Consequently, only a few brief statements about residence at licensure can be made.

---

[44] This is substantiated in the report of the major project, An Integrated, Longitudinal Study of Practical Nursing, which will soon be available in published form.

Table 30
LOCATION OF NURSING PROGRAM ATTENDED BY RESIDENCE AT LICENSURE (EDUCATION GROUP)

Location of Nursing Program Attended	Residence at Licensure											
	Rural			Urban						Other		
	N	C	S	WLO	CR	D	SC	CB	DM	CS	US	TOTAL
Practical Nursing												
Iowa Rural Areas												
Northern	18	-	2	-	1	-	-	-	-	-	1	22
Central	15	26	5	2	3	2	2	-	2	4	-	61
Southern	1	-	17	-	-	-	-	1	-	2	-	21
Practical Nursing												
Iowa Urban Areas												
Waterloo	6	2	-	9	1	-	-	-	-	-	-	18
Cedar Rapids	8	7	2	1	11	-	-	-	-	1	-	30
Davenport	-	-	-	-	-	6	-	-	1	5	-	12
Sioux City	-	-	-	-	-	-	3	1	-	-	-	4
Des Moines	1	1	4	-	-	-	-	17	-	-	-	23
Practical Nursing												
Out-of-State	19	4	2	2	1	1	1	2	3	4	-	39
Professional Nursing												
Iowa	10	12	4	3	-	-	2	1	8	2	-	43
Out-of-State	8	5	7	-	-	1	2	-	-	3	-	26
TOTAL	86	57	43	18	17	10	10	5	31	21	1	299

Table 30 shows that of the 234 subjects who attended an Iowa program in nursing, 15 (6%) gave an out-of-state address at time of licensure. Seven (11%) of the 65 who attended an out-of-state nursing program kept an out-of-state address. In this exchange Iowa gained 43 licensed practical nurses. When the Iowa geographic divisions are dichotomized into

Urban Areas and Rural Areas, 104 subjects were prepared in a practical nursing program in the Rural Areas, and 84 (81%) of these gave a rural residence at licensure; of the 87 prepared in a practical nursing program in the Urban Areas, 50 (57%) gave an urban residence when licensed. While the Central Rural Area and the Cedar Rapids Urban Area prepared the most practical nursing students, they retained the lowest percentage of them, 43% and 37% respectively.

Current Residence: Current residence is that given by subjects at the time they were last issued a current license to practice practical nursing in Iowa. In most instances this was in 1965.

In the three Rural Areas the trend in mobility between the time of attendance at a practical nursing program and 1965 is similar to the trend reported between practical nursing program attendance and residence at initial licensure. The Northern and Southern Rural Areas again retained at least 75% of their practical nursing graduates while the various component divisions of the Central Region retained less than 50% except for one Urban Area, Des Moines. It must be recognized, however, that of the 14 Iowa practical nursing programs in existence in 1964, eight were in the Central Region.

Sioux City, the only Urban Area in the Northern Region, retained 75% of its graduates through 1965. This figure can be considered as only an indicator, because so few subjects attended the practical nursing program in Sioux City. Of the remaining Urban Areas, all of which are in the Central Region, the only one retaining more than 50% of its graduates was Des Moines, which retained 74%.

Table 31
LOCATION OF NURSING PROGRAM ATTENDED BY CURRENT RESIDENCE (EDUCATION GROUP)

Location of Nursing Program Attended	Current Residence											
	Rural			Urban						Other		
	N	C	S	WLO	CR	D	SC	CB	DM	CS	US	TOTAL
Practical Nursing												
Iowa Rural Areas												
Northern	17	-	2	1	-	-	-	-	-	1	1	22
Central	8	29	2	1	3	1	2	-	2	11	2	61
Southern	1	1	16	-	-	-	-	1	-	2	-	21
Practical Nursing												
Iowa Urban Areas												
Waterloo	8	1	-	8	-	-	-	-	-	1	-	18
Cedar Rapids	5	7	1	1	12	-	-	-	2	2	-	30
Davenport	-	-	-	-	-	6	-	-	-	6	-	12
Sioux City	-	-	-	-	-	-	3	1	-	-	-	4
Des Moines	1	1	3	-	-	-	-	1	17	-	-	23
Practical Nursing												
Out-of-State	16	7	2	1	1	1	-	2	3	4	2	39
Professional Nursing												
Iowa	9	7	5	2	-	-	2	1	8	6	3	43
Out-of-State	4	3	4	2	2	-	1	-	-	5	5	26
TOTAL	69	56	35	16	18	8	8	6	32	38	13	299

A study of the mobility of subjects in Urban and Rural Areas shows that of the 104 prepared in Rural Areas, 76 (73%) gave a current address in a Rural Area, 11 (11%) in an Urban Area, and 17 (16%) outside of Iowa. Fifty-one (59%) of the 87 prepared in an Urban Area gave a current address in an Urban Area, 27 (31%) gave a current address in a Rural Area, and nine (10%) gave a current address in a Contiguous State. Six of the nine subjects reporting current addresses in a Contiguous State lived in Illinois while attending a practical nursing program in Davenport, Iowa.

The sample included 65 who received their nursing preparation in states other than Iowa. Their preparation may have been either the completion of an approved practical nursing program or partial completion of an approved professional nursing program. In 1965, 16 (25%) of the 65 reported out-of-state addresses, 26 (55%) had established residence in an Iowa Rural Area and 13 (20%) in an Iowa Urban Area. Since the majority of Iowa practical nursing programs were in the Central Region, it may have been more economical or practical for persons in the extreme Southern and Northern Regions of the State to attend nursing programs in Contiguous States. Findings indicate that 75% of these people returned to Iowa following their nursing preparation, the majority to the Rural Areas from which they probably originated.

As reported earlier, when comparing in-migration and out-migration at the time of initial licensure, Iowa had a net gain of 43 licensed practical nurses. By the end of 1965, a similar comparison, in terms of current residence, revealed that Iowa's net gain had declined to 14. This figure seems significant since the U. S. Census Bureau lists a net emigration from Iowa for the period, April 1, 1960 to July 1, 1964 as 134,000 (only migratory characteristics considered).

Table 32 shows the number of subjects who attended high school in a specific division and gave a current address in that same division. In all cases except Waterloo, at least 58% had a current address in the same division in which they attended high school. A composite percentage rate of return for the nine divisions is 61%.

As shown previously, the Central Rural Area prepared the plurality of practical-nursing-educated subjects but, of the three Rural Areas, it retained the lowest percentage. This finding can now be put into proper perspective. While the Central Rural Area prepared the plurality but retained the lowest percentage, it had the highest rate of retention, 62%, in terms of licensees who attended high school in a Rural Area. The next highest rate of retention was in the Southern Rural Area, 60%, followed by the Northern Rural Area with 58%. Therefore the subjects who migrated into the Central Rural Area for nursing preparation are likely to emigrate from the Area, following their nursing preparation, in greater proportion than did those who attended high school there.

Table 32
LOCATION OF GENERAL EDUCATION BY CURRENT RESIDENCE (EDUCATION GROUP)

Location of General Education	Current Residence											
	Rural			Urban						Other		
	N	C	S	WLO	CR	DM	CB	D	SC	CS	US	TOTAL
Iowa Rural Areas:												
Northern	44	9	4	4	4	2	-	-	1	7	1	76
Central	3	29	-	1	2	4	-	-	-	6	2	47
Southern	3	4	25	-	1	3	1	-	1	2	2	42
Iowa Urban Areas:												
Waterloo	2	1	-	7	1	3	-	-	-	3	1	18
Cedar Rapids	-	2	1	2	8	-	-	-	-	-	-	13
Des Moines	-	-	-	-	-	13	1	1	-	1	-	16
Council Bluffs	-	-	-	-	-	-	3	-	-	-	-	3
Davenport	1	-	-	-	-	-	-	5	-	1	-	7
Sioux City	2	-	-	-	-	-	-	-	4	-	-	6
Other:												
Contiguous States	11	9	4	2	1	2	1	1	2	16	5	54
Other U.S. States	3	2	-	-	1	4	-	1	-	1	2	14
Foreign Countries	-	-	1	-	-	1	-	-	-	-	-	2
TOTAL	69	56	35	16	18	32	6	8	8	38	13	299

Among the Urban Areas with a minimum of 13 subjects, once again Des Moines retained the highest percentage of those who attended high school in the respective areas, 81%. The six Urban Areas, as a group, retained 63%, a figure slightly higher than the Rural Areas.

Of the twenty-six subjects who had attended high school in Iowa and gave a current address outside the State, 20 gave addresses in a Contiguous State. Of the 70 who attended high school out-of-state, 46 gave a current residence in Iowa. Iowa gained 20 licensed practical nurses in this exchange.

Net Gain or Loss: Each of the last four tables was concerned with the number of subjects in a specific division at one of four points in time: 1) general education, 2) nursing preparation, 3) residence at initial licensure, and 4) residence in 1965. The gross effects of in- and out-migration in terms of numbers gained or lost by a division has not yet been reported.

The figures in the other four tables are reported for the total education group (299) who were licensed on the basis of either having completed a practical nursing program or having attended a professional nursing program. Since available data do not include location of Iowa professional nursing programs where 43 subjects attended, this precludes their being identified by geographic division. Therefore, it is impossible to include the second point in time (when attending a nursing program). Consequently Table 33 shows the net gain or loss, by geographic division, only for the remaining three points in time.

Table 33
NET GAIN OR LOSS (THREE POINTS IN TIME) BY GEOGRAPHIC DIVISION (EDUCATION GROUP)

	Rural			Urban						Other		
	N	C	S	WLO	CR	D	SC	CB	DM	CS	US	FC
Location of general ed.*	76	47	42	18	13	7	6	3	16	54	14	2
Residence at licensure	86	57	43	18	17	10	10	5	31	21	1	-
Current residence	69	56	35	16	18	8	8	6	32	38	13	-
Gain or loss	-7	+9	-7	-2	+5	+1	+2	+3	+16	-16	-1	-2

*Unknown for one.

Using location of general education as the base number for each division, among Iowa divisions the largest loss between high school and current residence was only seven subjects. The largest gains were made by the Des Moines Urban Area (+16) and the Central Rural Area (+9). This indicates that despite inter- and intra-state mobility, the individual divisions tend to remain fairly stable. Through the movements between location of general education, residence at licensure, and current residence, the Contiguous States lost 16 subjects and the other U. S. States lost one.

Providing an indication of mobility over all four points in time, Table 34 shows the net gain or loss by geographic divisions using the 256 subjects of the education group for whom the location of nursing program attended is known.

Table 34
NET GAIN OR LOSS (FOUR POINTS IN TIME) BY GEOGRAPHIC DIVISION (EDUCATION GROUP, EXCLUDING IOWA PROFESSIONAL NURSING STUDENTS)

	Rural			Urban						Other	
	N	C	S	WLO	CR	D	SC	CB	DM	OOS	FC
Location of General Education (A)	63	35	36	14	13	7	4	3	13	65	2
Location of Nursing Program Attended (B)	22	61	21	18	30	12	4	-	23	65	-
Gain or Loss (B)-(A)	-41	+26	-15	+ 4	+17	+ 5	0	- 3	+10	0	- 2
Res. at Licensure (C)	76	45	39	14	17	10	8	4	23	20	-
Gain or Loss (C)-(B)	+54	-16	+18	- 4	-13	- 2	+4	+4	0	-45	0
Current Residence (D)	60	49	30	14	18	8	6	5	24	42	-
Gain or Loss (D)-(C)	-16	+ 4	- 9	0	+ 1	- 2	-2	+1	- 1	+22	0
Gain or Loss (D)-(A)	- 3	+14	- 6	0	+ 5	+ 1	+2	+2	+11	-23	-2

Table 34 shows the following:

1) Between the two points in time, (A) and (B), the Northern Rural Area lost 65% of its total number, the Southern Rural Area lost 42% and the Central Rural Area gained 74%. The four Urban Areas in the Central Region gained. Of the remaining two Urban Areas, Sioux City retained its total number and Council Bluffs lost all of its subjects because it did not have a practical nurse education program.

2) Between the two points in time, (B) and (C), the Northern Rural Area gained 54 more subjects than received their nursing preparation there, the Southern Rural Area gained 18 and the Central Rural Area lost 16. But between points (A) and (C) (not computed in the table), the gains of the Northern and Southern Rural Areas were more modest, 13 and 3 respectively; and the Central Rural Area gained 10 subjects. Between (B) and (C) three of the four Urban Areas in the Central Region lost subjects, while the remaining two Urban Areas, outside the Central Region, gained subjects. Between (A) and (C), all Urban Areas gained subjects, except Waterloo which retained its original number. It is readily apparent that between (B) and (C) the gains in the various Iowa Areas is due to in-migration.

3) Between (C) and (D) there was a loss by the Northern and Southern Rural Areas and a small gain by the Central Rural Area, -16, -9, and +4 respectively. Cedar Rapids, Council Bluffs and Des Moines each gained one subject; Waterloo again retained its original number; and Davenport and Sioux City each lost two. The loss of subjects by Iowa Areas is largely due to out-migration from the State.

4) Between points in time (A) and (D) the Central Rural Area and all Urban Areas except Waterloo had gained subjects. The geographic divisions outside the State lost a net of 25 and the Northern and Southern Rural Areas had a net loss of three and six respectively. Total gains or losses (bottom line in both Tables 33 and 34) show similar positive or negative results for each geographic division except Waterloo.

5) If the nine Iowa geographic divisions were combined into three

Regions, for the four points in time the results would be as follows:

Northern Region A = 67 B = 26 C = 80 D = 66

Central Region A = 82 B = 144 C = 109 D = 113

Southern Region A = 39 B = 21 C = 43 D = 35

Summarily, between (A) and (D), the Northern Region lost a new total of one, the Central Region gained 31 and the Southern Region lost four.

Mobility of Education Group AND Experience Group: *Residence at licensure and current residence provide an opportunity to make a limited comparison of the mobility patterns of the education group and the experience group.*

Table 35
RESIDENCE AT LICENSURE BY CURRENT RESIDENCE
(EDUCATION GROUP)

Residence at Licensure	Current Residence											
	Rural			Urban						Other		
	N	C	S	W	CR	DM	CB	D	SC	CS	US	TOTAL
Iowa Rural Areas:												
Northern	61	9	4	3	3	1	-	-	-	5	-	86
Central	2	38	-	-	2	3	-	-	-	9	3	57
Southern	2	4	28	-	2	-	-	-	-	2	5	43
Iowa Urban Areas:												
Waterloo	2	1	-	11	-	-	-	-	-	3	1	18
Cedar Rapids	1	2	1	2	10	-	-	-	-	1	-	17
Des Moines	-	-	1	-	-	28	1	1	-	-	-	31
Council Bluffs	-	-	-	-	-	-	5	-	-	-	-	5
Davenport	-	-	-	-	-	-	-	7	-	2	1	10
Sioux City	-	-	-	-	1	-	-	-	8	-	1	10
Other:												
Contiguous states	1	1	1	-	-	-	-	-	-	16	1	21
Other U.S. states	-	-	-	-	-	-	-	-	-	-	1	1
TOTAL	69	56	35	16	18	32	6	8	8	38	13	299

Table 36
RESIDENCE AT LICENSURE BY CURRENT RESIDENCE
(EXPERIENCE GROUP)

Residence at Licensure	Current Residence											
	Rural			Urban						Other		
	N	C	S	W	CR	DM	CB	D	SC	CS	US	TOTAL
Iowa Rural Areas:												
Northern	29	1	-	-	-	-	1	-	-	-	1	32
Central	4	26	2	-	-	-	-	1	-	-	2	35
Southern	2	-	23	-	-	-	-	-	-	1	5	31
Iowa Urban Areas:												
Waterloo	1	2	-	4	-	1	-	-	-	-	-	8
Cedar Rapids	-	-	-	-	1	-	-	-	-	-	1	2
Des Moines	-	1	-	-	-	7	-	-	-	2	2	12
Council Bluffs	-	-	-	-	-	-	1	-	-	-	1	2
Davenport	-	1	-	-	-	-	-	2	-	1	-	4
Sioux City	-	-	-	-	-	-	-	-	4	-	1	5
Other:												
Contiguous states	-	-	-	-	-	-	-	3	-	2	-	4
Other U.S. states	-	-	-	-	-	-	-	-	-	-	1	1
TOTAL	36	31	25	4	1	8	2	5	4	6	14	136

Comparing Table 36 with Table 36, the experience group shows a higher rate of stability in the three individual Rural Areas than does the education group: Northern = 91% and 71% respectively, Central = 74% and 67%, and Southern = 74% and 65%. The mean percentage for the experience group is 80% and for the education group, 68%. Grouping the Urban Areas, the results are the opposite; the education group shows a higher rate of retention than the experience group, 76% and 58% respectively.

A similar percentage in each group held Iowa residence at licensure and now give out-of-state addresses - 12% of the education group and 13% of the experience group. Closer examination of this out-of-state movement shows that 22 (67%) of the 33 in the education group have a current residence in a contiguous state and that 13 (76%) of the 17 in the experience group have a current residence in other U. S. states.

Distribution of Currently Licensed Practical Nurses Living in Iowa: Current residence gains major significance when the percentage of currently licensed practical nurses with current addresses in that division. See Table 37. Despite the fact that prior to 1965 practical nursing programs were more numerous in the Central Region, the distribution of currently licensed practical nurses is almost exactly proportional to the distribution of Iowa's total population.

Table 37
DISTRIBUTION OF CURRENTLY LICENSED PRACTICAL NURSES
COMPARED TO AREA POPULATION

	Iowa Population (1960)		LPN (CIED + CIX)	
	N	%	N	%
Des Moines	266,315	(9.66)	33	(10.86)
Sub-total	266,315	(9.66)	33	(10.86)
Other Metropolitan Areas				
Cedar Rapids	136,899	(4.96)	17	(5.59)
Waterloo	122,482	(4.44)	18	(5.92)
Davenport	119,067	(4.32)	10	(3.29)
Sioux City	107,849	(3.91)	10	(3.29)
Council Bluffs	83,102	(3.01)	7	(2.30)
Sub-total	569,399	(20.64)	62	(20.39)
Rural Areas				
Northern	821,088	(29.78	86	(28.29)
Central	646,936	(23.46)	71	(23.36)
Southern	453,799	(16.46)	52	(17.10)
Sub-total	1,921,823	(69.70)	209	(68.75)
GRAND TOTAL	2,757,537	(100.00)	304	(100.00)

The Des Moines Urban Area has 9.7% of the State's population and 10.9% of the active licensed practical nurses; the other Urban Areas have 20.6% of the population and 20.4% of the active licensed practical nurses. The Rural Areas have 69.7% and 68.8% respectively. The largest difference in this trichotomy is 1.2 percentage points for the Des Moines Urban Area. Within divisions, the largest difference is 1.5 percentage points for both Waterloo and the Northern Rural Area.

Number of Addresses Since Original Licensure: Sixty-seven per cent of the experience group and 57% of the education group continue to show the same address as at the time of original licensure. There is little difference in the percentage of those in each of the two groups who have made no change or only one change, 85% of the education group and 88% of the experience group. These percentages indicate that the overwhelming majority of licensed practical nurses in Iowa are stable in their place of residence since initial licensure. See Table 38.

Table 38
NUMBER OF ADDRESSES SINCE ORIGINAL LICENSURE

	Experience		Education	
	N	%	N	%
Same address	91	(67)	169	(57)
One change	28	(21)	84	(28)
Two changes	11	(8)	31	(10)
Three changes	4	(3)	10	(3)
Four and five changes	2	(1)	5	(2)
TOTAL	136	(100)	299	(100)

CHAPTER V

SUMMARY, CONCLUSIONS

Practical nursing, as it is known today, stemmed from society's demand for more nursing service than available professional nurses were able to provide during and immediately after World War II. This demand continued and still exists largely because of the nation's increasing population, greater life expectancy, greater utilization of health insurance provisions, new and changing techniques in the field of medicine, and the public's growing desire for more and better health care. Also, the recognition of the contribution to health care being made by licensed practical nurses has resulted in a widespread acceptance of, and desire for, these health workers.

While numbers can measure in part the current supply and the potential need for these nursing personnel in Iowa, other factors produce a more accurate profile of the licensed practical nurse population and work force in our State. These factors include age, sex, race, licensure status, and geographic mobility patterns over the 16 1/2 year period since the Iowa Nurse Practice Act first provided for practical nurse licensure.

General Characteristics of Practical Nurses Licensed in Iowa: When compared with the general population of Iowa (1960 Census), the licensed practical nurse population in the State does not differ significantly in terms of place of birth. Notable, too, is the fact that the distribution of currently licensed practical nurses living within Iowa is approximately proportionate to the distribution of the State general population. The racial distribution is relatively proportionate to that found in the segment of the general Iowa population twenty years of age or older. As might be expected, only 1.6% of Iowa's licensed practical nurses are men.

The findings support the assumption that there is a trend for the licensed practical nurse population to be a progressively younger group. Over the 16 1/2 year period covered in this study, the median age at initial licensure of those licensed on the basis of experience (waiver) was 50, whereas the median age of those licensed on the basis of having attended a nursing education program was 22. However, in 1965 when the median ages of these two groups were compared, the experience group had a median age of 64 while the median age of the education group remained relatively young, 29.

More practical nurses licensed by education had completed high school than had those in the experience group, yet the number who had pursued education beyond high school was greater in the experience group than in the education group.

When the mean scores on the state board examination were compared among four groups delineated by type and location of nursing preparation program attended, the results were found to be quite similar with the exception of one group. The deviant group consisted of subjects educated in out-of-state programs in professional nursing who had a mean score slightly higher than the other three groups. If the N were larger and this relationship still held, further investigation would be in order.

Currency of License: When age and currency of license were compared, a greater than statistically expected number of practical nurses in the 25-44 age group, and a smaller than statistically expected number in the 24-and-under category, had inactive licenses. Under closer scrutiny, however, this does not seem unreasonable since the responsibilities of marriage and family in the 25-44 age group account for the high rate of inactivity. The 24-and-under age group had an exceptionally low rate of inactivity. This may be explained by the fact that very seldom does a practical nurse let her license lapse prior to having held it active for at least three successive years following initial licensure.

When type and location of nursing program attended were compared with licensure status, marked differences were found among groups. The group licensed following completion of a program in practical nursing tended to keep their licenses active at a higher rate than did the group licensed after having completed a portion of a program in professional nursing. Practical nurses prepared in Iowa's urban areas were more likely to keep their licenses active than were those prepared in rural areas of the State. Among those graduated from programs in practical nurse education, Iowa graduates had a higher rate of license currency than did the out-of-state graduates.

Mobility and Stability: In terms of place of birth, the proportionate distributions for the two groups, experience and education, were very similar. With the movement of subjects between place of birth and location of general education, the urban areas gained. This is probably due to the ever-increasing tendency in the general population to gravitate toward urban areas.

The distribution of practical nurse programs in Iowa, when compared to the distribution of Iowa's general population, has changed markedly in the past few years. Prior to 1965 some areas in the State produced a significantly smaller percentage of practical nurse graduates than their respective percentages of the State's general population would suggest. Since 1965, with the addition of nine (9) new programs in practical nursing, the distribution of these educational programs in Iowa now approximates the distribution of Iowa's general population.

In the migration of subjects from the time they completed their general education to the time they matriculated in a nursing education program, more came into the State than went out of the State. A large number of individuals from the Northern Rural Area migrated to other areas for their nursing preparation, and a significant percentage of these went out-of-state. A similar pattern of migration was noted in the Southern Rural Area.

During the period from attendance in a nursing program to residence at initial licensure, Iowa again profited in the exchange of subjects between states. Within Iowa, the Central Region did not gain by the movement of subjects during this interval.

Between location of nursing program attended and current residence, Iowa's gain of 14 licensed practical nurses seems to be significant in view of the fact that the U. S. Census Bureau lists the State's net out-migration as 134,000 for the period April 1, 1960 through July 1, 1964.

For the experience group, when age was compared with location of current residence within and outside Iowa, subjects over age 65 were less likely to live out of state than were those in other age groups. Indeed, those in the 45-64 age group had a higher than statistically expected frequency of out-of-state residency.

To determine the effect of mobility on the three Regions in Iowa, migration of the education group, with the exception of those licensed on the basis of having attended a program in professional nursing, was studied over four points in time: location of general education, location of nursing education program attended, residence at initial licensure, and current residence. The migratory trend in the licensed practical nurse population can best be determined by comparing the number of subjects in each region at the first and last points in time. In the interval between general education and current residence, the Northern and Southern Regions each had a net loss, one and four respectively, while the Central Region gained 31.

At the time of the data collection the number of address changes reported by the subjects since their initial licensure indicates a high degree of stability in residence.

Practical Nurse Replacement Projections for Iowa: Soon all of the practical nurses licensed on the basis of experience (waiver) will be inactive since they are approaching standard retirement age. The data show that the closer one is to retirement age, the greater the likelihood of license inactivity. Thus, the experience group, long the backbone of the entire practical nurse work force, is rapidly being depleted. In the future, due to the provisions of the Iowa Nurse Practice Act, only those prepared in a nursing education program can be counted on to fill the gap in the practical nurse work force left by these retirees.

In addition, there is a higher than statistically expected rate of inactive licensure among subjects in the 25-44 age group. This is largely attributable to child-bearing and child-rearing responsibilities. Though the term of inactivity for an individual is usually temporary, the aggregate results represent a continuous drain on the supply of available licensed practical nurses.

These findings indicate that practical nurses must be prepared in Iowa in larger numbers not only to accommodate the above replacement needs, but also to meet the perpetual demand for more licensed practical nurses in our State.

APPENDIX A

Conducted by:

University of Illinois

College of Education
Department of Vocational and
Technical Education
51 East Armory Avenue
Champaign, Illinois
Phone: 217–333-2756
217–333-2757

Professional staff:

Mr. Clarence L. Ash
Research Associate

Mr. Larry J. Bailey
Research Associate

Mr. John Huck
Research Associate

Miss Lois A. Jarnagin, R.N.
Research Associate

Mr. David L. Joyce
Research Associate

Mrs. Lois M. Langdon, R.N.
Research Associate

Mr. Glen Martin
Research Associate

Mr. Warren N. Suzuki
Research Associate

Mr. Thomas L. Switzer
Research Associate

Mr. James S. Underwood
Research Associate

In cooperation with:

University of Iowa

Program in Health Occupations
Education
135 Melrose Avenue
Iowa City, Iowa
Phone: 319–353-3536

Professional staff:

Miss Elizabeth E. Kerr, R.N., M.A.
Associate Research Investigator

Mr. Dale F. Petersen
Research Coordinator

Miss Carole B. Hoadley
Research Associate

Mr. Ronald F. Czaja
Research Associate

ILLINOIS
O
W
A

PRACTICAL NURSING STUDY

(A Prospectus)

The research and evaluation described herein is being performed pursuant to a contract with the
United States Department of
Health, Education, and Welfare,
Office of Education

Supported by:
Division of Vocational and Technical Education
United States Office of Education
Department of Health, Education, and Welfare
Contract No. 5-85-038

FOREWORD

This is a Prospectus of a study supported by the United States Department of Health, Education, and Welfare, Office of Education. The research project is the responsibility of the University of Illinois, College of Education, with cooperation from the University of Iowa, Programs in Health Occupations Education. Some members of the research staff will have a background and experience in nursing education and nursing service.

An advisory committee representing professional associations and agencies will be utilized for guidance and consultation.

This study is concerned with determining the nature of the population of licensed practical nurses, their employment patterns and preferences, the recruitment and selection of students of practical nursing and the programs through which they are prepared, as well as the relationships among identifiable characteristics of individuals and their employment patterns as practitioners of practical nursing. It will include individuals, programs, and employment settings in the states of Illinois and Iowa.

All data collected will be held in strict confidence by the professional research staff. Upon completion of the study, the final report will be made available to all participating programs, agencies, and organizations. No individual or specific institution or agency will be identified by name in the reports.

Robert M. Tomlinson, Director

INTRODUCTION

The health occupations field is one of the most rapidly expanding areas in terms of demand for technical advancement and personnel. Despite the accelerated development of nursing programs and the attempts to augment the recruitment of personnel to meet past and present nursing needs, a critical shortage continues to exist in both quantity and quality at all levels of nursing. The increase in population and the growing need for services exceeds the increase in educational programs and student enrollment in programs. A restructuring of the knowledges, skills, and functions of traditional nursing patterns is also taking place.

One of the greatest single changes is the emerging role of the prepared, licensed practical nurse as a member of the nursing team. It is only in relatively recent times that programs of practical nurse education are reaching a level of maturity and stability of operation.

PURPOSES OF THE STUDY

The long-range goal of the study is the improvement of the nursing services through the improvement of the selection process, educational programs (including curriculum and the instructional staff) and better utilization of prepared personnel. This study will not attempt to implement changes, but will provide new knowledge and relationships in a meaningful manner that may be applied by those directly responsible for preparing practical nurses and utilizing their services.

The general hypothesis of the study is that there exist differential and identifiable characteristics among potential and actual students in approved programs of practical nursing, the programs themselves and the employment situations, and that meaningful relationships among these characteristics can be determined. Findings from an investigation of these characteristics and the relationships among them should serve to improve the quantity and quality of available nursing services.

DEFINITIONS

(1) ***The practice of practical nursing:*** The performance for

compensation of selected acts in the care of the ill, injured, or infirm under the direction of a registered professional nurse or a licensed physician or a licensed dentist; and not requiring the substantial specialized skill, judgement and knowledge required in professional nursing.[1]

(2) ***The Role of the Licensed Practical Nurse:*** The work of the LPN is an integral part of nursing. The licensed practical nurse gives nursing care under the supervision of the registered professional nurse or physician to patients in simple nursing situations. In more complex situations, the licensed practical nurse functions as an assistant to the registered professional nurse.[2]

(3) ***The Licensed Practical Nurse (LPN):*** The occupation of practical nursing has developed in recent years to the place where all states legally provide for practical nurse licensure. The procedures and requirements for obtaining a license to practice as a practical nurse were established by statutes in Iowa in 1949 and Illinois in 1951.

A total of 13,744 licenses had been issued to practical nurses in Illinois and 3,976 issued in Iowa at the end of July 1965.

Particular attention will be given to those LPN's who have attended an approved nursing education program and have met the licensure requirements of Illinois or Iowa.

CONDUCT OF THE STUDY

This study consists of three interrelated phases which are scheduled over a 39-month period. The research group will be structured to work concurrently in Illinois and Iowa during each phase of the study.

---

[1] National League for Nursing, *Licensed Practical Nurses In Nursing Services*, 10 Columbus Circle, New York, p. 39.

[2] Statement jointly approved by the American Nurses'Association and National Federation of Licensed Practical Nurses, 1964.

The universe of the possible employment locations for cooperation in the interviews will be established by contacting a sample of all currently licensed practical nurses in each of the two states. In addition all practical nurse education programs, public and private, will be contacted as possible participants.

Directories from the governmental agencies and professional associations will also be used to validate the sample.

PHASE I. – September 1965 to September 1966:

Objective – to identify the knowledges, functions, and occupational patterns of a selected sample of practical nurses who are licensed on the basis of having attended an approved nursing education program.

A random sample of approximately 550 practical nurses and 250 supervisors of practical nurses will be selected for a personal interview. Where possible, it is desirable to conduct the interviews at the employment locations. The study is designed to include representatives from all types of employment situations and assignments. The sample is structured to retain this representation without overburdening the cooperating employment agencies. To avoid prejudicing the study, the interviewees should be randomly selected from LPN's employed at the location.

PHASE II. – January 1966 to February 1968:

Objectives – (1) to determine the characteristics of all applicants, students, and graduates of selected programs of practical nursing and their relationships, and

(2) to determine the characteristics of a selected sample of programs of practical nursing, to identify those criteria related to student success, and occupational patterns of graduates.

The cooperation of at least thirty practical nurse education programs with a total enrollment of approximately 1,000 students will be solicited. The sample will include programs representing differences in size, administrative structure, educational personnel, curriculum organization, facilities, and community.

This phase will be concerned with all applicants for and students enrolled in the cooperating programs in the September 1966 and February 1967 classes.

The cooperating programs will be provided, from the National League for Nursing and other sources, with standardized tests and other special instruments for use in student selection and evaluation. Study personnel will visit the programs for additional data collection sessions, e.g., testing, interview, etc. All expenses for the tests and their scoring will be paid by the research project and the results made available to the program concerned.

The testing and visitation sessions will be cooperatively pre-scheduled and planned so as to require minimal alterations in schedules and activities. Three data collection sessions of less than one day each will be necessary during the enrollment of the class.

PHASE III. – January 1968 to July 1968:

Objective: to follow-up the applicants, dropouts, and graduates of the selected programs to determine relationships between the characteristics of the individuals, programs attended, and employment situations.

Starting about four months after graduation of the classes studied, a random sample of approximately 500 applicants, dropouts, and graduates will be contacted for a follow-up personal interview; the remainder will receive a mail questionnaire.

All data and previous findings will be applied to the follow-up of the new graduates in the employment situation to gain insights into the intercorrelations of personal characteristics, educational programs, employment situations, and occupational information and patterns.

This should result in the identification of discriminating selection criteria which tend to predict success in practical nurse programs and in employment.

NOTE: Not included in this research project but anticipated for possible future approval is a four-year follow-up study of the graduates and programs studied in Phases II and III. The instruments and findings of these earlier phases would be utilized to investigate relationships between characteristics of the individuals, programs, and employment situations over a time period.

THE DATA COLLECTION

The material to be collected from both the interviews and from the educational programs is dictated to a large degree by the factors that are assumed to have an influence on the individuals' educational and occupational choices and patterns and their responses. Consequently, a job history will be solicited from each interviewee which will then be assessed to determine if there are identifiable patterns such as: assignment of duties across or among employment locations, stability and mobility of assignment within and/or between employers and geographic locations, movement into and out of employment as a practical nurse.

A group of cards has been developed to represent a broad sampling of possible functions or activities that may be performed by a practical nurse. Each card has a single brief statement of an activity on it. The interviewee will be asked to indicate those activities she performs as a part of her duties.

The interview sheet was designed to identify (1) the formal educational background, (2) the nature of the education, (3) the place and persons involved in developing an interest in practical nursing, and (4) the occupational history.

THE DATA ANALYSIS

The use of standardized instruments whenever possible will facilitate interpretation and utilization of results by others. Computer programs and analyses have been developed by both the University of Illinois and the University of Iowa in conjunction with studies of technicians and Specialty Oriented Students. Many of these will be applied and/or adapted for use in this study.

The IBM 7094 computer facility at the University of Illinois will be utilized, wherever possible, in the analysis of the data.

APPENDIX B

OFFICIAL NAMES AND ADDRESSES OF EXISTING PROGRAMS IN PRACTICAL NURSE EDUCATION IN IOWA

IOWA PROGRAMS OF PRACTICAL NURSE EDUCATION ADMINISTERED IN COOPERATION WITH VOCATIONAL EDUCATION BRANCH IOWA DEPARTMENT OF PUBLIC INSTRUCTION

Ames School of Practical Nursing
Ames Public Schools
12th and Duff Streets
Ames, Iowa

Division of Practical Nurse Education
Southeastern Iowa Community College
720-1/2 Jefferson Street
Burlington, Iowa

Program in Practical Nurse Education
Area I Vocational-Technical School
142 Main Street
Calmar, Iowa

Program in Practical Nurse Education
Division of Health Occupations Education
Area X Community College
643--10th Street, S. E.
Cedar Rapids, Iowa

Division of Practical Nurse Education
Centerville Community College
Centerville, Iowa

Cherokee School of Practical Nursing
101-1/2 East Main
Cherokee, Iowa

Program in Practical Nurse Education
Division of Health Occupations Education
Iowa Western Community College
Clarinda Campus
923 East Washington Street
Clarinda, Iowa

Program in Practical Nurse Education
Division of Health Occupations Education
Eastern Iowa Community College
Clinton Campus
Jane Lamb Nurses' Home
Clinton, Iowa

Program in Practical Nurse Education
Division of Health Occupations Education
Iowa Western Community College
Council Bluffs Campus
225 Harmony
Council Bluffs, Iowa

Program in Practical Nurse Education
Division of Health Occupations Education
Eastern Iowa Community College
Scott Campus
909 East River Drive
Davenport, Iowa

Des Moines School of Practical Nursing
1440 Center Street
Des Moines, Iowa

Dubuque School of Practical Nursing
Vocational-Technical Education
1500 Locust Street
Dubuque, Iowa

Division of Practical Nurse Education
Iowa Lakes Community College
Estherville, Iowa

Program in Practical Nurse Education
Division of Health Occupations Education
Iowa Central Community College
Fort Dodge, Iowa

Program in Practical Nurse Education
Division of Health Occupations Education
Iowa Western Community College
Harlan Campus
1018-1/2 Sixth Street
Harlan, Iowa

Program in Practical Nurse Education
Division of Health Occupations Education
North Iowa Area Community College
215--15th Street, S. E.
Mason City, Iowa

Program in Practical Nurse Education
Division of Health Occupations Education
Iowa Tech Area XV Community College
Ottumwa Industrial Airport
Ottumwa, Iowa

Program in Practical Nurse Education
Division of Health Occupations Education
Western Iowa Tech
222 South Floyd Boulevard
Sioux City, Iowa

Program in Practical Nurse Education
Hawkeye Institute of Technology
2800 Falls Avenue
Waterloo, Iowa

PROGRAMS OF PRACTICAL NURSE EDUCATION ADMINISTERED IN PRIVATE HOSPITALS IN IOWA

Antonian School of Practical Nursing
St. Anthony's Hospital
Carroll, Iowa

Mercedian School of Practical Nursing
Mercy Hospital
Marshalltown, Iowa

St. Luke's Hospital School of Practical Nursing
St. Luke's Methodist Hospital
Cedar Rapids, Iowa

BIBLIOGRAPHY

American Nurses' Association, Facts About Nursing: A Statistical Summary, New York, 1965.

American Nurses' Association, Facts About Nursing: A Statistical Summary, New York, 1966.

American Nurses' Association, Facts About Nursing: A Statistical Summary, New York, 1967.

American Nurses' Association, Health Occupations Supportive to Nursing: A Statement of Policies and Recommendations, New York, 1965.

"Educational Preparation For Nursing," Nursing Outlook, vol. 8 (September 1960), 487-489.

Iowa Board of Nursing, Law of Iowa as it Pertains to the Practice of Nursing, Des Moines, The State of Iowa, 1949.

Iowa Board of Nursing, Law of Iowa as it Pertains to the Practice of Nursing, Des Moines, The State of Iowa, 1964.

Iowa Board of Nurse Examiners, Report for the Biennial Period Ending June 30, 1950, Des Moines, State of Iowa, 1950.

Iowa Board of Nurse Examiners, Report for the Biennial Period Ending June 30, 1952, Des Moines, State of Iowa, 1952.

Iowa Board of Nurse Examiners, Report for the Biennial Period Ending June 30, 1954, Des Moines, State of Iowa, 1954.

Iowa Board of Nurse Examiners, Report for the Biennial Period Ending June 30, 1956, Des Moines, State of Iowa, 1956.

Iowa Board of Nurse Examiners, Report for the Biennial Period Ending June 30, 1958, Des Moines, State of Iowa, 1958.

Iowa Board of Nurse Examiners, Report for the Biennial Period Ending June 30, 1960, Des Moines, State of Iowa, 1960.

Iowa Board of Nurse Examiners, Report for the Biennial Period Ending June 30, 1962, Des Moines, State of Iowa, 1962.

Iowa Board of Nurse Examiners, Requirements, Recommendations and Policies Governing Iowa Accredited Schools of Practical Nursing, Des Moines, State of Iowa, 1954.

Iowa Board of Nursing, Report for the Biennial Period Ending June 30, 1964, Des Moines, State of Iowa, 1964.

Iowa Board of Nursing, Report for the Biennial Period Ending June 30, 1966, Des Moines, State of Iowa, 1966.

Iowa State Board of Public Instruction, *State Plan for the Administration of Vocational Education Under the Vocational Education Acts,* Des Moines, State of Iowa, 1964.

Johnston, Dorothy F., *History and Trends of Practical Nursing*, St. Louis, C. V. Mosby Co., 1966.

Joint Curriculum Conference of the National League for Nursing, *Report of the Proceedings, November 13-15, 1960,* New York, 1961.

Kerr, Elizabeth E., *A Study of Social and Educational Factors and Success in Practical Nurse Education,* Unpublished Master's Thesis, State University of Iowa, Iowa City, 1962.

Kerr, Elizabeth E., and Dale F. Petersen, *Iowa Practical Nursing Sub-Study,* Iowa City, University of Iowa Printing Service, 1966.

Montag, Mildred L., *The Education of Nursing Technicians,* New York, G. P. Putnam's Sons, 1961.

National League for Nursing, *Education for Practical Nursing, 1960,* New York, 1962.

National League for Nursing, "Educational Preparation for Nursing", *Nursing Outlook,* (September 1966), 58-61.

National League for Nursing, *Licensed Practical Nurses in Nursing Services,* New York, 1965.

National League for Nursing, *Nursing Education Programs Today,* New York, 1962, 9-10.

National League for Nursing, *State-Approved Schools of Practical and Vocational Nursing,* New York, 1965.

Phillips, Elisabeth C., "Joint Committee on Practical Nurses and Auxiliary Workers in Nursing Services", *Fifty-sixth Annual Report of the National League of Nursing Education,* New York, 1950, 207-211.

Siegel, Sidney, *Nonparametric Statistics for the Behavioral Sciences,* New York, McGraw-Hill Co., Inc., 1956.

Tomlinson, Robert M., and others, *Practical Nursing in Illinois: A Profile,* Urbana, University of Illinois, 1967.

U. S. Bureau of the Census, *Statistical Abstract of the United States 1966,* Washington, D.C., U.S. Government Printing Office, 1966.

U. S. Bureau of the Census, U.S. Census of Population: 1960. General Social and Economic Characteristics, Iowa. Final Report PC (1)-17C, Washington, D.C., U.S. Government Printing Office, 1962.

U. S. Department of Health, Education and Welfare, Toward Quality in Nursing Needs and Goals: A Report of the Surgeon General's Consultant Group on Nursing, Washington, D.C., U.S. Government Printing Office, 1963.

U. S. Department of Labor, America's Industrial and Occupational Manpower Requirements 1964-75, Washington, D.C., U.S. Government Printing Office, 1965, 136.

U. S. Department of Labor, Women's Bureau, 1965 Handbook on Women Workers, Washington, D.C., U.S. Government Printing Office, 1966.

Zeisel, Hans, Say It With Figures, New York, Harper and Row, 1957.